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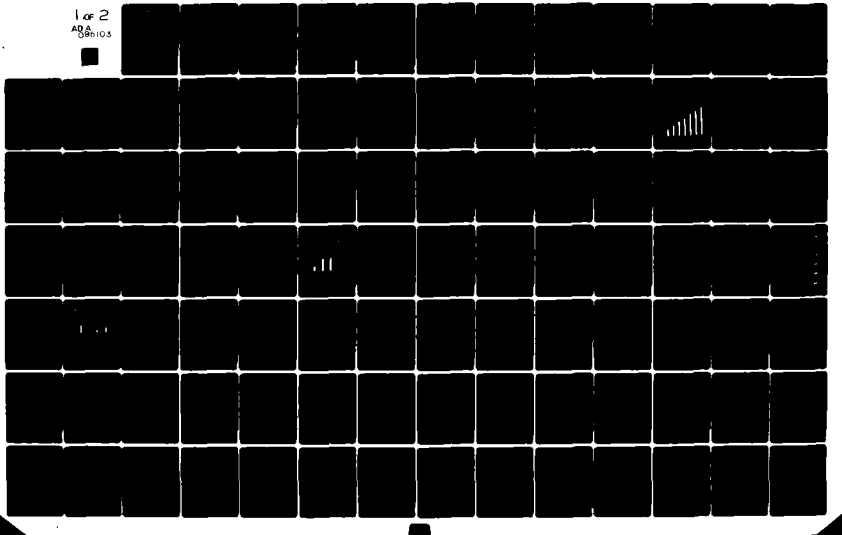

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SURVEY OF SMALL BUSINESSES:

ISSUES IN METRIC PLANNING AND CONVERSION

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By:
DAMANS and Associates, Inc.

For:
United States Metric Board

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A mail survey of randomly chosen 2500 small business firms covering five groups (manufacturing, construction, transportation, wholesale trade, and retail trade), selected as representative of a population of about 725,000 firms, was conducted in 1980. About 500 firms could not be located; of the remainder, about 1100 (55 percent) responded with useful data. Among the findings are:

- There is a modest amount of metrication with more emphasis on hard metric products than on soft or hybrid products;

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- o Although problems have been encountered by converting firms, the problems have been overcome within the firms' resources;
- o Trade and business associations are not seen as representational vehicles for conversion planning, nor are there significant amounts of conversion planning underway;
- o For most small business, the cost of converted products is about the same as the cost of customary products; an exception is among manufacturing firms where more than half report metric products as more costly;
- o Conversion has taken place principally because of demands from customers, suppliers, or the particular industry; alternatively, the predominant reason for not converting is lack of demand from customers;
- o About one-fourth of the small business groups studied design, manufacture, or provide goods and services in metric measurements.

SURVEY OF SMALL BUSINESSES: TO IDENTIFY THE ISSUES IN METRIC PLANNING AND CONVERSION. (Final Report)

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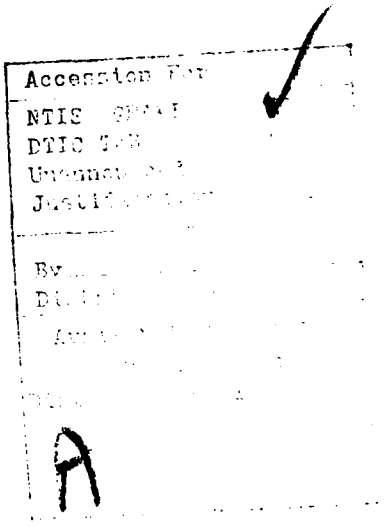
A special thanks is extended to the project advisory committee for their periodic review and thoughtful suggestions throughout the study. We are grateful to the following persons who acted as advisors: the Honorable Carl Beck, Charles Beck Machine Corporation, former small business member of the United States Metric Board; Garnet Beswick, AMTEX Microwave Corporation; John Deam, National Machine Tool Builders Association; John Doxsey, Steel Service Center Institute; Andrew Luff, United States Small Business Administration; John Motley III, National Federation of Independent Business, Inc.; Lewis Schattuck, Smaller Business Association of New England; the Honorable Roger Travis, United States Metric Board small business member; Peter Webster, Black and Webster, Inc.; and Alberta Wilkinson, Baltimore Motor Coach Co.



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SUMMARY

INTRODUCTION

This chapter describes the highlights of the Survey of Small Businesses conducted by DAMANS and Associates, Inc., under contract with the United States Metric Board.

The Metric Conversion Act of 1975 (PL94-168) requires the Board to conduct research and publish information about increasing metric usage. The needs and interests of small businesses are specifically mentioned in the Act. The primary purpose of the survey is to identify the opportunities, problems, and issues confronting small business in the voluntary metric conversion process. In particular, the study focused on the representation of small business in the planning for voluntary metric conversion activities. The study was also undertaken to provide the Board with accurate data that may enable it to encourage the potential opportunities and find ways to lessen the impact of the potential problems of metrication through exercising its coordinating role.

By way of a capstone on the summary, for the types of small business firms selected, the study indicates that:

- there is a modest but significant amount of metrication with more emphasis on hard metric products than on soft or hybrid metric products;
- although problems have been encountered by firms that have converted, the problems seem to have been overcome within the firm's resources;
- trade or business associations are not seen at present as vehicles for metric conversion planning, nor does there appear to be any significant amount of metric conversion planning underway;
- for the majority of businesses, the cost of converted products is generally about the same as the cost of customary products; and
- conversion has taken place principally because of demands from customers, suppliers, or the particular industry as a whole.

This summary presents first a brief description of the survey sample and the population from which it was drawn, and then a review of the data gathered. The summary of the findings, which follows the methodology section, parallels the pattern of the body of the report:

- representation in planning for voluntary metric conversion;
- status of metric conversion in small business;
- factors which may influence metric conversion; and
- assistance for small business metric conversion.

Within each set of findings, the key observations are highlighted and then discussed to explore the implications. The summary ends with recommendations derived chiefly from the suggestions provided by the small business respondents to the survey.

The results of this study are addressed primarily to the United States Metric Board. However, in many instances the appropriate audience would include trade associations and business organizations, as well as small businesses.

OVERVIEW OF SURVEY METHODOLOGY

The survey sample of 2500 small businesses was selected from five major business groups--construction, manufacturing, transportation, wholesale trade, and retail trade. The five groups were recommended by an advisory panel as being likely to show metrication activity. Within the five major groups, small businesses were drawn from 10 Standard Industrial Classifications (SIC's) on a random probability basis to represent the parent population of 725,516 firms. Five hundred companies were found to be out of business, relocated without a forwarding address, or could not be reached because mailed materials were returned as "non-deliverable". The viable sample consisted of approximately 2000 businesses. The survey questionnaire developed for the data gathering effort was designed to be as structured and closed-ended as realistically possible, in order to aid self administration. The data collection included three mailings and one telephone follow-up, and resulted in a 55 percent response rate. The response rate is adequate to represent the population of 725,516 small businesses in the 10 SIC groups. The data provide valid and clear perspectives of the small businesses that are currently providing metric products and services,

those that plan to provide metric products and services in the future, and those that have no future plans to provide metric products or services.

SURVEY FINDINGS

The following paragraphs list and summarize noteworthy findings in four broad areas of inquiry covered in the survey. They include representation in planning for voluntary metric conversion, the status of metrication activities, the factors that may be related to metric conversion, and the assistance received by small businesses that have converted.

Representation in Planning for Voluntary Metric Conversion

Key Findings

- Most small businesses (89%) do not feel they have a forum for representation in planning for voluntary metric conversion.
- Even in those businesses that believe they have a forum for representation, two-thirds report they are not well represented by that forum.
- On closer scrutiny, when asked through what means their views are represented, two-thirds report no means of representation, one-fifth mention trade associations or business organizations, and one-tenth report self-representation through their own individual actions.
- Overall, less than 6 percent of all small businesses feel they are well represented in the planning for the increasing use of the metric system in this country.

Discussion

However the issue of representation is approached, the resulting determination is that small businesses are not represented through a collective voice in planning for metric conversion.

The lack of sufficient representation is clear. The question to then raise is whether small businesses are not represented because they do not feel a need for representation, or whether there are no opportunities for representation.

Key Findings

- Well over half of all small businesses (66%) feel they should be represented in the planning process in this country.
- Small businesses' recommendations for increased or improved representation are: better representation through business and trade associations (44%); better educational materials (22%); and a better voice in shaping government policies (16%). (One out of every five respondents made a recommendation.)

Discussion

Lack of interest or desire does not explain small businesses' poor representation. However, the assumption of businesses' taking action towards this desired representation cannot be made. Stating that small businesses should be represented in this country is expressing a rather "generic" opinion. However, their low ratings of representation suggests a dissatisfaction with the present means available. Some small businesses have definite ideas on improvements for representation, and the most often mentioned suggestion was involvement of trade and business associations. One of the previously stated questions has been answered; there is, in fact, an expressed interest in representation in the planning for voluntary metric conversion. The other question of opportunity is addressed by looking at the most frequently mentioned recommendation. Do trade and business associations offer a vehicle for representation?

Key Findings

- Approximately one half of all small businesses are members of trade or business associations.

- Generally speaking, membership in national trade and business associations is the most prevalent. In fact, membership is reported more often in national associations than is reported in international, state, regional, and local associations combined.

- To some extent the type of association varies according to the type of small business. Manufacturing firms have the most memberships in national associations and retail trade businesses have more memberships in regional associations than do other major business groups.

- Membership in associations is strongly related to the size of the firm as measured by sales volume--that is, the larger firms are more likely to be members.

- A vast majority (95%) of small businesses are not aware of any associations involved in metric planning.

Discussion

From the perspective of membership population, trade and business associations offer a strong potential vehicle for small business representation in metric planning. However, associations are not very active in planning and clearly do not meet the needs of small businesses at present. Expressed interest far exceeds an opportunity to participate in the planning for voluntary metric conversion.

Status of Metric Conversion in Small Business

Discussion

Conversion to the metric system may involve many intermediate stages of planning and adjustments, or it may take place abruptly in very few stages. The definitions of "metrication activities" and "metric conversion" must therefore be kept in mind. Metrication activities broadly include all stages believed leading to and including possible conversion to the metric system. Conversion refers to a company's actual production or provision of metric products.

In addition to the definitions of metrication activities and metric conversion, metric products are categorized into three types. "Hard metric" products are products that are designed and manufactured in a metric size. "Soft metric" products are given labels indicating the equivalent metric measurement units or dual (metric and customary) units without any physical transformations. "Hybrid metric" products are a combination of metric and customary components or parts.

Key Findings

- Almost one-fourth (23%) of small businesses design, manufacture, or provide goods and services in the metric system.
- The metrication activities undertaken by small businesses usually are somewhat indirect and casual. Termed therefore as "unstructured", they include: businesses considering costs and benefits of conversion, (14%); talking with customers, (17%); or talking with suppliers about metric conversion, (20%).
- "Structured" activities of issuing metric policy statements, developing a timetable for conversion, and developing a conversion plan are each practiced by one percent of small businesses.
- Metric conversion is found principally in manufacturing, wholesale trade, and retail trade businesses (approximately 25 percent of each business type). Construction and transportation businesses have 4 percent and 6 percent, respectively.
- Hard metric products are provided more often than soft metric products, and soft metric products are found more frequently than hybrid metric products.

Discussion

Approximately one-fourth of small businesses have one-fourth or less of their products in metric units. It must be remembered that the population of small businesses surveyed was deliberately selected as possibly having metric products. The general metrication activities are often unstructured --

having discussions with suppliers or customers, and considering possible costs and benefits of conversion. Furthermore, only 1 percent of the businesses that are not converted have a concrete plan to convert in the near future. The lack of a "declared" plan leads to further considerations about the general nature of small business planning for the future and the reasons more metric planning is not in process.

Key Findings

- The major reason for small businesses not planning to convert is that there is no apparent demand for metric products from customers or suppliers.
- About one-half of businesses do not plan ahead beyond two years; one-third plan more than two years ahead; and one-tenth do not have any future plans.

Factors Which May Influence Metric Conversion

Key Findings

- The single major reason for converting is demand from customers, suppliers, or from within an industry.
- Sixty-five percent of small businesses state the cost of metric products is about the same as customary products. Twenty-three percent report costs of metric products as greater, and 12 percent find the costs to be less than customary products.
- Metric products are being provided more often by businesses with association membership (one out of three businesses) than by non-association businesses (one out of six).
- A relatively small percent (12%) of all businesses have overseas sales. However, a larger percent (40%) of those businesses with overseas sales have metric products.
- Sales volume of small businesses does not appear to be related to their converting to the metric system.

Discussion

While it is impossible to prove a direct relationship, a number of conditions could exist that would make metric conversion more beneficial and more likely to take place. These are: 1) if a small business is aware of a demand for metric products; 2) if it does not anticipate metric products costing any more than customary products; and 3) if it has an overseas market.

Assistance for Small Business Metric Conversion

Key Findings

- One half of converted small businesses encountered problems in metricating.
- The largest problem was making operational adjustments, such as dual inventories and employee training.
- Most converted small business (80%) did not receive any assistance in solving their problems.
- The assistance received by converting companies is usually in the form of general information.
- If businesses were forced to metricate under extreme pressure, they project a stronger need for assistance than has been received by businesses already converted.
- Government assistance is thought to be necessary by 38 percent of the businesses if they were forced by extreme pressure to convert. This compares to the 1 percent of converted businesses that have received government assistance.
- In almost 80 percent of the businesses receiving any assistance, the source of assistance for converted businesses is usually their suppliers.

Discussion

Practically one-half of the small businesses had difficulties in converting to the metric system. Yet the majority of businesses did not receive assistance in converting. Suppliers provide most assistance in the form of general

information materials. If small businesses are forced to metricate because of pressure from suppliers or customers, they believe they will require considerably more assistance than converted companies have received in the past, especially from the government.

Recommendations to the United States Metric Board

The following recommendations, based on the survey's findings, are offered for the U.S. Metric Board's consideration:

- Because small business does not see itself as well represented but feels it should be represented, efforts should be made to provide information on the costs and benefits of conversion to trade and business associations, especially those with small business constituencies.

- Many small businesses believe the U.S. Metric Board has the power of enforcement in the conversion process. The Board therefore needs to clarify its role as a coordinator of a voluntary process.

I. INTRODUCTION

1.1 Study Background

A national survey of Small Businesses was conducted for the United States Metric Board (USMB) by DAMANS and Associates, Inc. in the Spring of 1980.

The United States Metric Board, established by Section 3 of the Metric Conversion Act of 1975, Public Law 94-168, is the Federal agency responsible for coordinating the voluntary conversion to the metric system in the United States, in addition to providing public awareness, education, and research services regarding the use of metric units in the United States.

The Board is required by the Act to report on the issues in metric planning and conversion for small businesses. Specifically, sections 6(1), 6(8), 6(9), and 6(10) of the Act require the USMB to:

- Consult with and take into account the interests, views, and conversion costs of United States commerce and industry, including small business (6(1))
- Collect, analyze, and publish information about the extent of usage of metric measurements; evaluate the costs and benefits of metric usage; and make efforts to minimize any adverse effects resulting from increasing metric usage (6(8))
- Conduct research, including appropriate surveys; publish results of such research; and recommend to the Congress and to the President such action as may be appropriate to deal with any unresolved problems, issues (6(9))
- Submit annually to the Congress and to the President a report on its activities (6(10))

In carrying out the functions, the Board contracted with DAMANS to conduct a survey of small businesses to identify the opportunities, problems, and issues confronting small business in the increasing voluntary metric conversion planning and the metric process, e.g., specifically the representation of small business in the voluntary planning for eventual metric conversion activities.

1.2 Study Objectives

The overall goal of the study was to determine the scope and nature of opportunities, problems, and issues confronting small businesses in the voluntary metric conversion process. The representation of small business in planning for metric conversion and the extent of small business participation in metric conversion were examined.

Four main study objectives were identified:

1. To determine the degree of small business representation in the voluntary planning for metrication in this country.

   - What is the extent of small business membership in trade associations and business organizations?
   - Are small businesses or the organizations to which they belong involved in planning?
   - Are small businesses aware of organizations involved in developing plans for voluntary conversion?
   - Do small businesses have a forum for presenting their views on metric conversion?
   - By what means are small businesses represented?
   - Do small businesses feel they should be represented?
   - How well are small businesses represented?
   - What are the recommendations for representing small businesses in the planning process?

2. To determine status of metric conversion activities among small businesses.

   - What kind of conversion activities have taken place?

- How many firms are designing, manufacturing, or providing products or services in metric measurement?
- What were the costs and benefits of converting to the metric system?
- What problems or difficulties were encountered in converting?
- Do small businesses that have not converted have plans to convert in the near future?

3. To examine factors that have led or will lead small businesses to convert.

   - Who had primary responsibility for making the decision to convert?
   - What are the reasons given by businesses for converting, or not converting?
   - What future circumstances might lead small businesses to convert?
   - What effect has the nation's increasing voluntary metrication had on small business?

4. To identify the information and resources available to small businesses to assist in planning for and converting to the metric system.

   - What assistance was received by small businesses which have already converted?
   - What assistance is required for small businesses to convert in the future?
   - Where will small businesses turn for assistance if pressured to convert?

II. SURVEY FINDINGS

2.1 Representation in Planning for Voluntary Metric Conversion

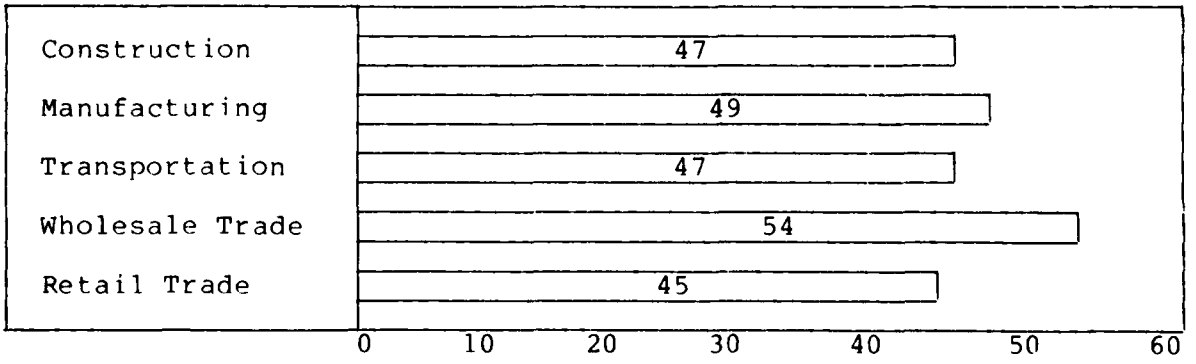
One of the central issues of the survey of small businesses involves the representation of small business in planning for voluntary metric conversion. A discussion is warranted concerning those factors which influence the representation. These factors include small business membership in trade associations or business organizations, and small business awareness of organizations involved in developing plans for voluntary metric conversion in the industry. It should be noted that succeeding sections in this chapter regularly refer to the possible influence of these factors on the level of small business representation in the planning for voluntary metric conversion.

2.1.1 Membership in Trade or Business Associations

Small businesses were queried about their association membership because it was felt that there may be potential for discussions about planning for metric conversion at the association level, through meetings and dissemination of information on the subject of conversion to the members.

Forty-nine percent of the businesses indicate that they belong to one or more associations. When the data are examined in the five business classifications, there appears to be no significant difference in association membership among them, as Figure 2-1 illustrates.

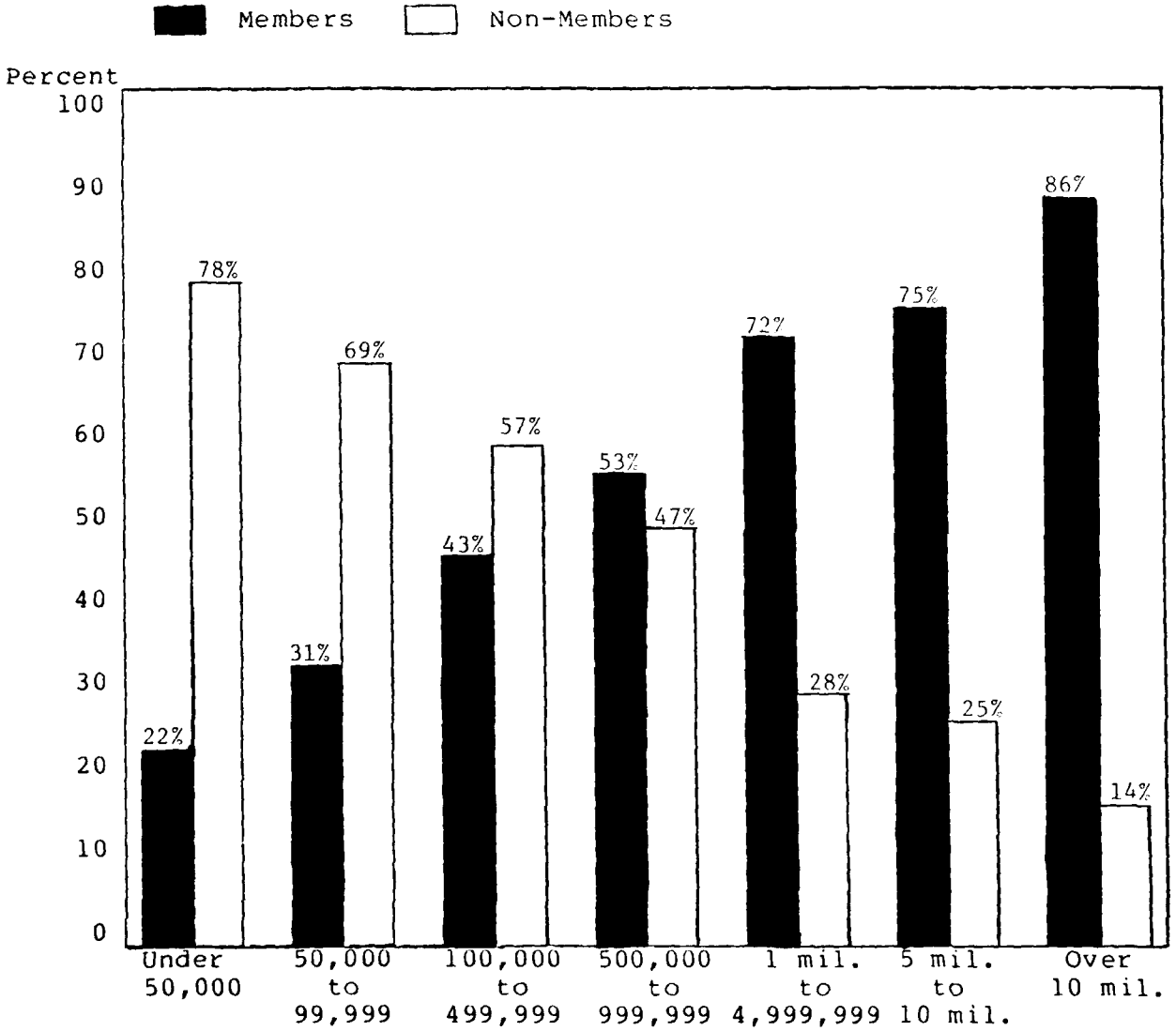
Figure 2-1: Small Business Membership in Trade Associations and Business Organizations (Percent)[a]



a. Number of businesses is 1092.

While there is little difference in association membership between the five major classifications of businesses, differences are apparent between businesses when they are compared on the basis of sales volume. Figure 2-2 illustrates that out of all small businesses having less than $50,000 annual sales volume, 22 percent belong to associations while 78 percent do not belong. The member-nonmember disparity is less when sales volume is $100,000 and shifts to membership

Figure 2-2: Percent of Small Business Membership in Trade Associations in Relation to Sales Volume[a]



a. Number of businesses is 1092.

leading non-menbership as sales volume exceeds $500,000. Small businesses with a sales volume of $1 million to $10 million have a substantial increase in membership. Businesses with over $10 million in sales volume are members in 86 percent of the cases.

2.1.2 Types of Association Membership

Respondents were asked to name the trade or business associations to which they belong. Their responses have been categorized into five main types of associations: international, national, regional, state, and local. This categorization gives an indication of the scope of interests of the various types of businesses.

As shown in Table 2-1, six times the small businesses who report association membership belong to national associations as compared to local associations. Only construction firms have association memberships higher than the survey average in local associations. Membership in international associations is virtually non-exsistent. Table 2-1 also shows that manufacturing firms report the highest (87%) membership in national assocations and retail trade has the lowest (59%). This is probably due to the nature of the two business groups: manufacturers generally produce for national distribution, whereas retail trade often is for local markets.

Table 2-1: Types of Association Membership of Small Businesses[a]

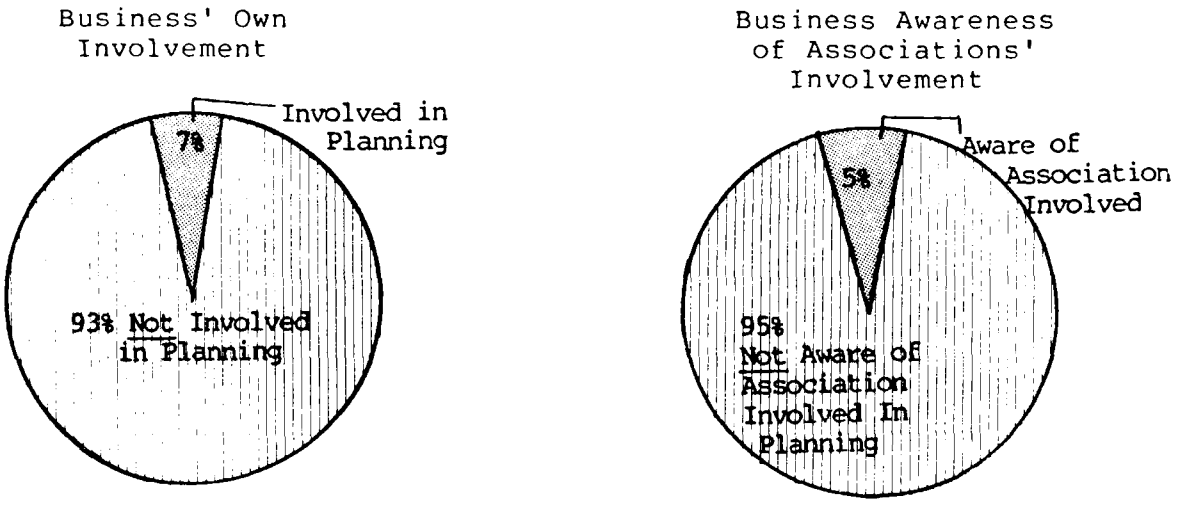
TYPE OF BUSINESS	INTER-NATIONAL		NATIONAL		REGIONAL		STATE		LOCAL	
	n	%	n	%	n	%	n	%	n	%
Construction	0	-	29	86	2	6	4	12	7	21
Manufacturing	0	-	98	87	5	4	26	23	13	12
Transportation	1	3	26	79	2	6	14	42	6	18
Wholesale Trade	4	2	145	77	19	10	42	22	15	8
Retail Trade	1	1	98	59	18	11	85	52	18	11

a. Percents and numbers are not additive because of the non-mutually exclusive answer categories.

2.1.3 Involvement in Developing Plans for Voluntary Metric Conversion

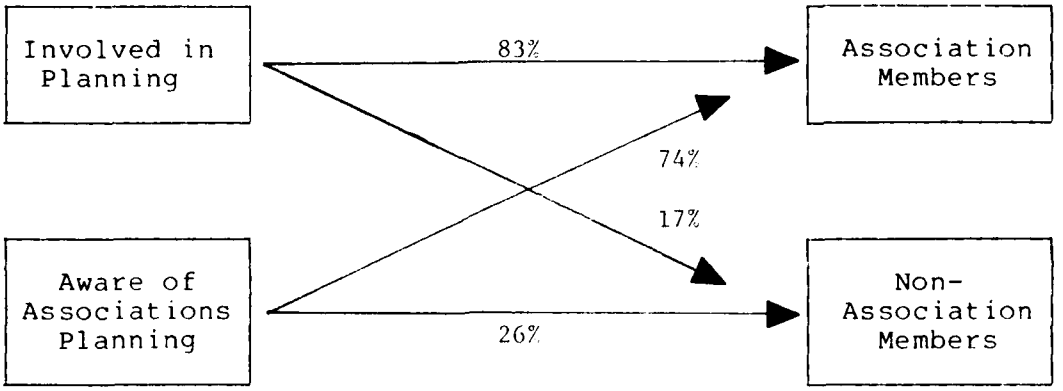
To continue the examination of small business representation in the planning for the use of the metric system, respondents were asked if they were involved in or aware of any association that is involved in developing plans for voluntary metric conversion. Ninety-three percent of small businesses responded in the negative. (See Figure 2-3) When respondents were further questioned about their awareness of associations that were involved in developing plans for voluntary metric conversion, a vast majority (95%) said they were not aware of such involvement by any association.

Figure 2-3: Involvement in Developing Plans for Metric Conversion



Though only a small proportion of the businesses said they were involved in or aware of associations involved in planning for voluntary metric conversion, their responses were further analyzed. When the data are examined to determine relationships between association membership and businesses' involvement in planning for voluntary metric conversion, presented in Figure 2-4, a clear relationship emerges. It appears that small businesses that are involved in planning or that are aware of associations' planning are more likely to be members of associations. The reader should be reminded that only a small proportion of the businesses indicated involvement in or awareness of metric planning.

Figure 2-4: Probability of Knowing About Planning



2.1.4 Representation in Planning

As mentioned earlier, one of the central issues of the study is the representation of small business in planning for metric conversion. One hypothesis that was to be tested was that "small businesses are not adequately represented in the planning for voluntary metric conversion". To test this hypothesis and assess other related issues, businesses were asked the following questions:

- Do you feel that you have a forum for representing your views on the planning for voluntary metric conversion?
- Through what means are your views on planning for voluntary conversion presented?
- If your views on voluntary conversion are heard through your trade association(s), which of the associations best represent your views?
- Do you feel that small businesses should be represented in the planning for metric conversion in this country?
- What do you see as the reasons why representation of small businesses in the planning for conversion is important in this industry?

- In general, how well do you think small businesses in this country are represented in the planning for voluntary conversion?

- What recommendations do you have for making sure that small businesses are represented in the planning for voluntary conversion in the industry?

The responses to these questions helped not only to test the hypothesis but also to determine if there is a need for representation, whether those needs are being met, and how best to meet them.

The data presented in Table 2-2 clearly support the hypothesis that small businesses are not adequately represented in the planning for use of the metric system. Nine out of ten respondents feel they do not have a forum for presenting their views on the planning for voluntary metric conversion.

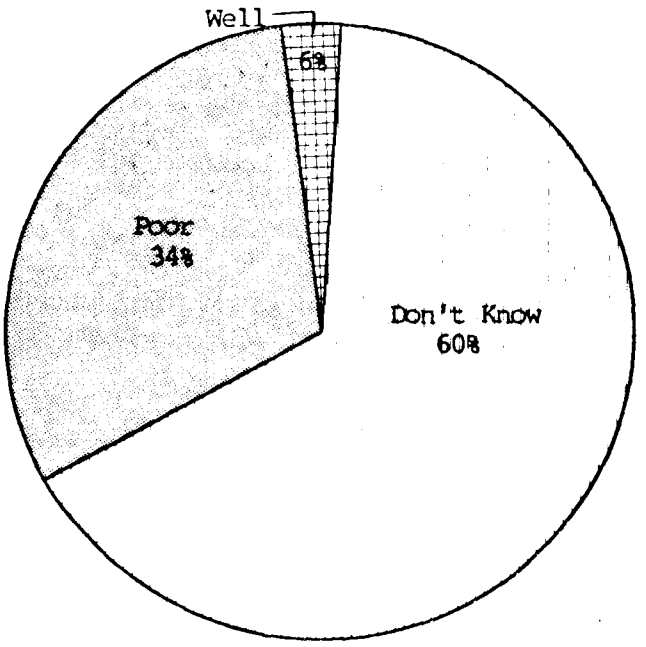
Table 2-2: Whether Small Business has a Forum for Representation

Type of Business	YES		NO		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Construction	8	12	61	88	69	100
Manufacturing	19	9	189	91	208	100
Transportation	6	9	58	91	64	100
Wholesale Trade	45	13	288	87	333	100
Retail Trade	37	11	310	89	347	100
TOTAL	115	11	906	89	1021	100

To look at the issue of representation in the planning process from another perspective, small businesses were asked through what means their views on voluntary metric conversion were represented. Sixty-six percent state that they had "no means of representation". Twenty percent indicate that they are represented "through membership in trade associations", and 13 percent state that they are represented through "their own individual actions". Of the 20 percent that mention representation through trade associations, the majority (72%) feel they are represented by national associations.

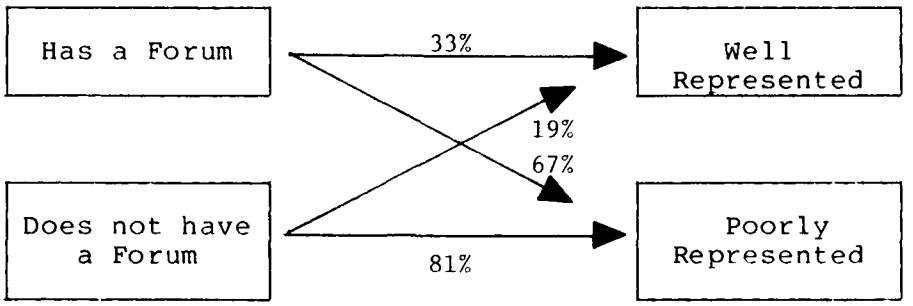
Since a clear majority (89%) of the small businesses feel they do not have a forum for representation, it is consistant that less than 6 percent of all the businesses feel they are well represented in the planning for the increasing use of the metric system in this country. As can be seen from Figure 2-5, a rather high proportion (60%) of the small businesses were uncertain about rating their representation. This might suggest that most small businesses are not fully informed about the metrication planning process.

Figure 2-5: Quality of Representation



When describing the quality of their representation, the opinion of having poor representation is about equally shared by businesses whether or not they have a forum for representation. Figure 2-6 shows that only one third of the small businesses having a forum believe that they are well represented by that forum.

Figure 2-6: Probability of Being Well Represented



2.1.5 The Need for Representation

As just discussed, most small businesses feel they do not have a forum for representing their views on the planning for voluntary metric conversion. The next issue explored is whether small businesses feel they should be represented in the planning process. A majority (66%) of the respondents express the opinion that small business should be represented. As shown in Table 2-3, the feeling is shared almost equally by the five business groups. The reason most often mentioned is that small businesses comprise the largest portion of the nation's total businesses and, therefore, should be represented in planning that affects them. It is worth noting that according to the U.S. Small Business Administration's classification, 97 percent of the nation's non-farm businesses are small businesses.

Table 2-3: Need for Small Business Representation in Voluntary Metric Planning

Type of Business	YES		NO		TOTAL	
	n	%	n	%	n	%
Construction	41	58	30	42	71	100
Manufacturing	150	68	72	32	222	100
Transportation	39	58	28	42	67	100
Wholesale Trade	226	67	112	33	338	100
Retail Trade	239	68	114	32	353	100
TOTAL	695	66	356	34	1051	100

In the minds of small business entrepreneurs there is no question that they should be represented. The next question is, how? The study examines this by asking the small businesses to make recommendations for better representation. As Table 2-4 shows, 44 percent of those offering recommendations suggested "better representation through trade and business associations". The next most often mentioned recommendation is "educational information". While this recommendation is rather indirect, it seems to suggest that small businesses feel the need to be informed more thoroughly before assuming an effective role in planning. Perhaps industry-wide information would indicate increased communication, and thus a form of representation for an industry's interests and experiences.

Table 2-4: Recommendations for Better Representation in the Planning for Voluntary Metric Conversion

Recommendations	Number	Percent
Better Representation in Trade Associations	105	44
Provide Better Educational Materials	51	22
Better Voice in Government Policies and Legislations	43	18
Conduct Needs Assessment Surveys	38	16

2.2 Status of Metric Conversion in Small Business

This section presents the broad picture of metric planning and conversion in the small business community. The status of metric activities involves three main areas of findings: the number of companies that have metric activities; the percentage of their total products that are metric; and the types of metric products. After the status of metric activities is presented, the time frame in which metric conversion takes place is discussed to give some insights about the conversion process. However, to only look at the present status of metric activities would ignore the businesses that are planning to convert in the future. Therefore, findings regarding the planning for metric conversion are also discussed

2.2.1 Small Businesses With Metric Activities

In the process of metric conversion, it is sometimes believed that several steps take place for an orderly and efficient transition in changing a company's products from customary to metric units. There are two purposes for examining the conversion process in small businesses. One is to determine if small businesses perceive a need for a structured, long-range transition in converting their products. The other related issue is to determine if the kinds of transition activities undertaken provide a key to the kinds of assistance needed and to the efficient coordination of industry-wide conversion.

Table 2-5 shows the status for a number of metrication activities. It demonstrates that small businesses consider the costs and benefits of metric conversion and talk with suppliers and customers about converting. For the purpose of this study, these metrication activities are termed "unstructured". The more "structured" activities of issuing a metric policy statement or developing a timetable for conversion are not practiced to a great extent.

The most often mentioned conversion activity is that of talking with suppliers about metric conversion. Twenty percent of the firms have at least taken this preparatory step. Although for purposes of this survey, talking with suppliers is defined as a metrication activity, in reality it might be a rather "casual" activity that may or may not lead to a firm's conversion to metric products.

Table 2-5: Percent of Small Businesses Involved in Metrication Activities[a]

Metrication Activity	Construction (n=73)[b]	Manufacturing (n=232)	Transportation (n=70)	Wholesale Trade (n=350)	Retail Trade (n=367)	TOTAL (n=1089)
STRUCTURED PLANNING ACTIVITIES						
Issued metric policy statement	-[c]	3	-	1	2	1
Developed a timetable for conversion	-	1	1	-	-	1
Developed a metric conversion plan	1	4	1	1	1	2
Coordinated conversion plan with industry	-	-	-	2	4	3
UNSTRUCTURED PLANNING ACTIVITIES						
Considered the costs and benefits of metric conversion	10	20	10	12	13	14
Talked with customers about metric conversion	6	19	4	19	19	17
Talked with suppliers about metric conversion	15	21	6	22	21	20
CONVERSION ACTIVITIES						
Already converted; develop products in metric sizes	-	7	1	7	5	6
Other; converted; provide or carry metric products[d]	4	14	13	12	11	11

a. Percents do not total 100 because respondents may have indicated having activity in several or none of the categories.

b. Number of respondents is given for each group of businesses.

c. Percentages of 0.5 or less are not shown in table.

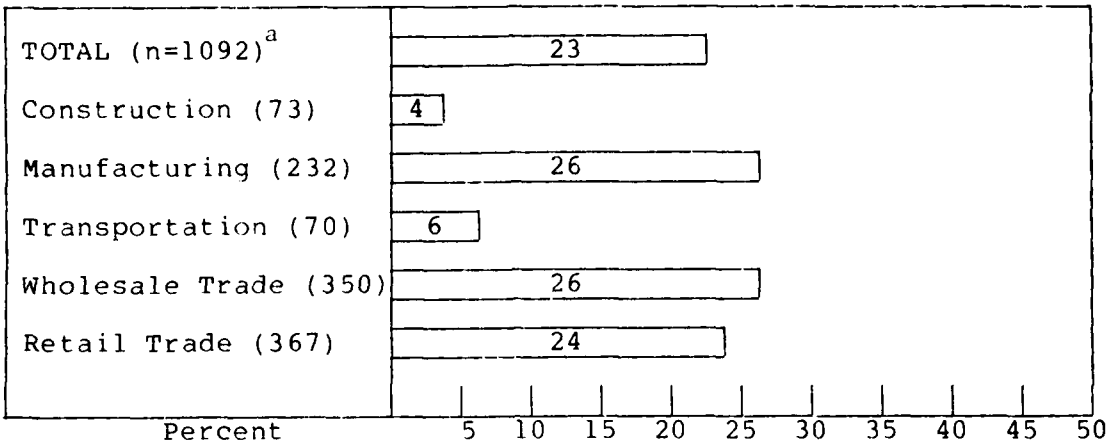
d. Responses in the "other" category indicated that metric products are being carried, but not developed. Answers were "written in" by respondents. All other activity categories were provided for responding.

Apparently, for small businesses these relatively informal activities are more integral to conversion than the more structured steps of developing a timetable or conversion plan. This has implications for further studies in the small business community. Certainly, it reflects on the costs of metric conversion, because a conversion process that consists of informal activities of discussions with suppliers and customers, or considering the costs and benefits, without a written statement or a company timetable, may incur less cost in converting. At the very least, businesses may perceive the costs of unstructured activities as being less obvious and harder to isolate in financial records.

The definition of conversion can range from "developing products in metric units" to a broader picture of "providing, manufacturing, or designing goods or services in the metric system". Although, as indicated in Table 2-5, 6 percent report developing metric products, 11 percent "wrote in" responses indicating they provide or sell metric products without developing them. These two categories combine to indicate that a maximum of 17 percent deal with metric products. However, when the small business respondents were asked from the broader context if they "design, manufacture, or provide goods or services in metric measurements", 23 percent of all businesses, or 246 firms, reported dealing with metric products. Because the 17 percent of businesses indicating they provide metric products (Table 2-5) is partially a result of respondents "writing in" another category, there is the possibility of under-representing metricated businesses in using that figure. Therefore, the figure used in referring to "metricated busineses", or "businesses providing metric products" is the 23 percent of businesses that in the broadest context design, manufacture, or provide goods or services in the metric system.

As indicated in Figure 2-7, more converted businesses in manufacturing, wholesale, and retail trade have converted, than have businesses in construction and transportation. In fact, metric products were found only in three construction firms and four transpor tranatton firms. Further comparison of groups with metric conversion, therefore, is limited to manufacturing, wholesale trade and retail trade.

Figure 2-7: Business Groups Providing Metric Products (Percent)



a. Number of respondents on which each percent is based.

2.2.2 Types of Metric Products

The previous section indicated there are several possible steps taken in the metric conversion process. There are also different types of conversion to the metric system. Metric products, therefore, are generally classified into three types: 1) soft metric products are products that are described or labeled with metric units, or with both metric and customary (dual) units of measurement without undergoing a physical change to conform to a metric standard of design; 2) hard metric conversion refers to actual physical changes in the product, not just substituting metric label or description for customary label; and, 3) hybrid metric products refer to products composed of both metric and non-metric parts or components.

For all questions, the concept of "metric products" is used, as opposed to "metric product sales". This is an important distinction to make because some groups, such as manufacturing, may be in the designing stages of converting a product, but they would not experience an effect on sales until some time in the future. Therefore, questioning respondents about metric products provides a more immediate, and broader, investigation of metric conversion activities.

Most businesses having any metric products, have them in less than 25 percent of their total products. The vast majority of businesses are not "fully" metric; most (75%) of the products they produce or provide are not in the metric system. An important finding is that 13 percent of businesses have 75 to 100 percent of their total products in hard metric units. This is in comparison to soft-converted metric and hybrid metric products that comprise 75 to 100 percent of products in only 3 percent of small businesses. Figures 2-8 through 2-10 illustrate the distribution of hard, soft, and hybrid metric products in small businesses.

A question to consider is why hard metric products are found more often than soft metric. (Soft metric products are found more often than hybrid products.) One explanation for the relatively high proportion of hard metric products carried may be found in the type of businesses surveyed. (See Appendix A for a complete description.) The largest number of businesses in the group of Manufacturing have Standard Industrial Classifications (SIC) of "Machinery, except Electrical", and "Fabricated Metal Products". The Wholesale Trade group consists of businesses with SIC classification of "Durable Goods". The Retail Trade group consists of businesses classified into "Building Materials" and "Automotive Dealers".

Figure 2-8: Percents of Small Businesses Providing Hard Metric Products

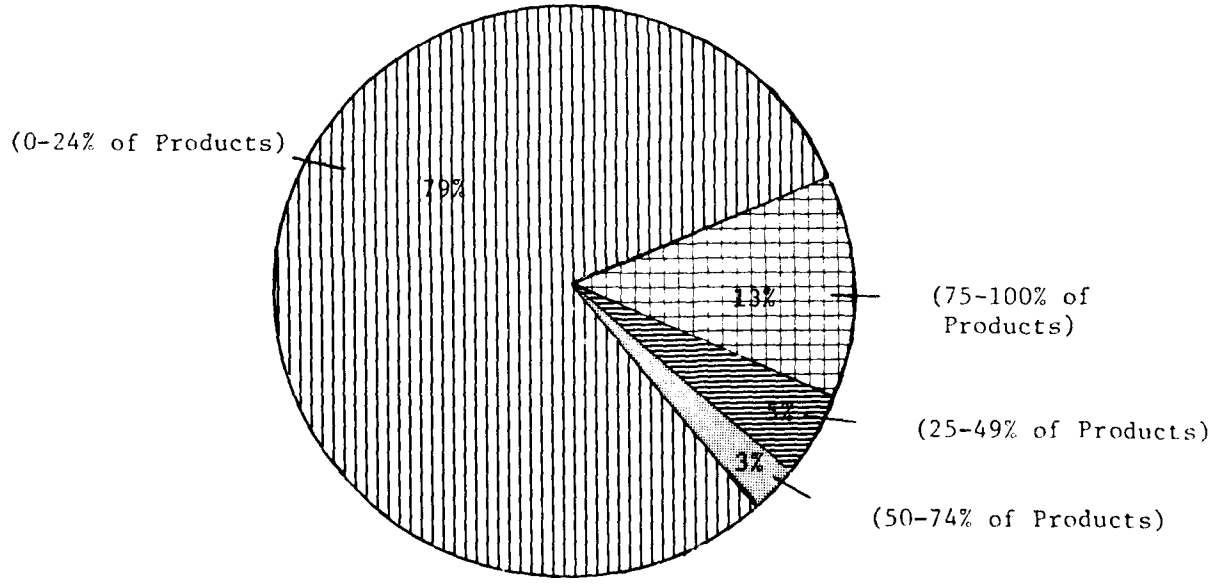


Figure 2-9: Percents of Small Businesses Providing Soft Metric Products

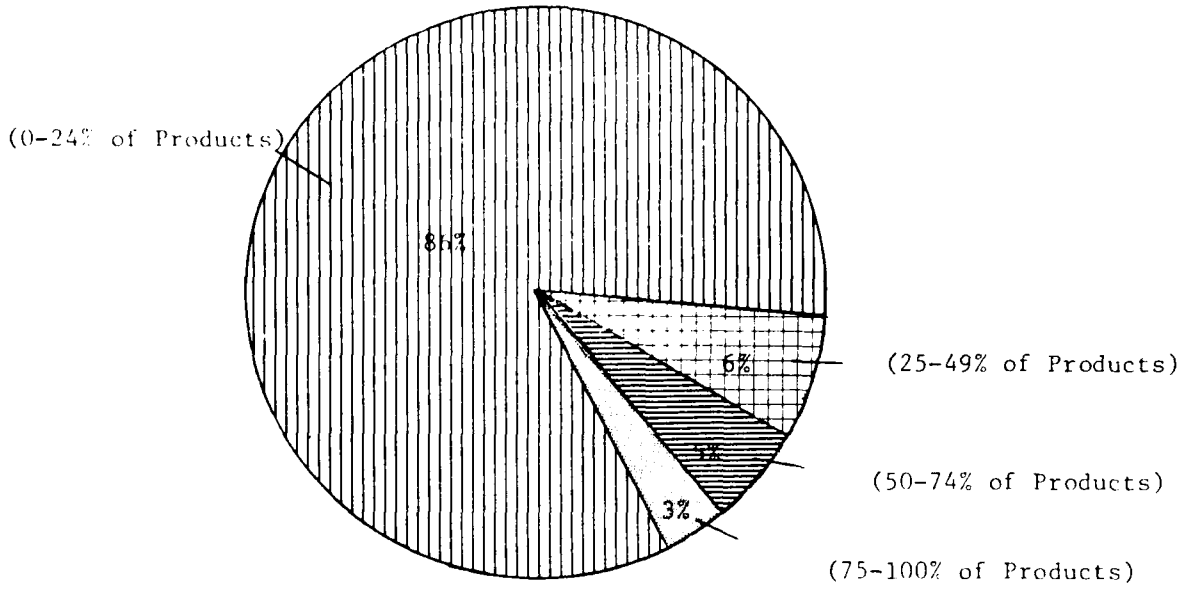
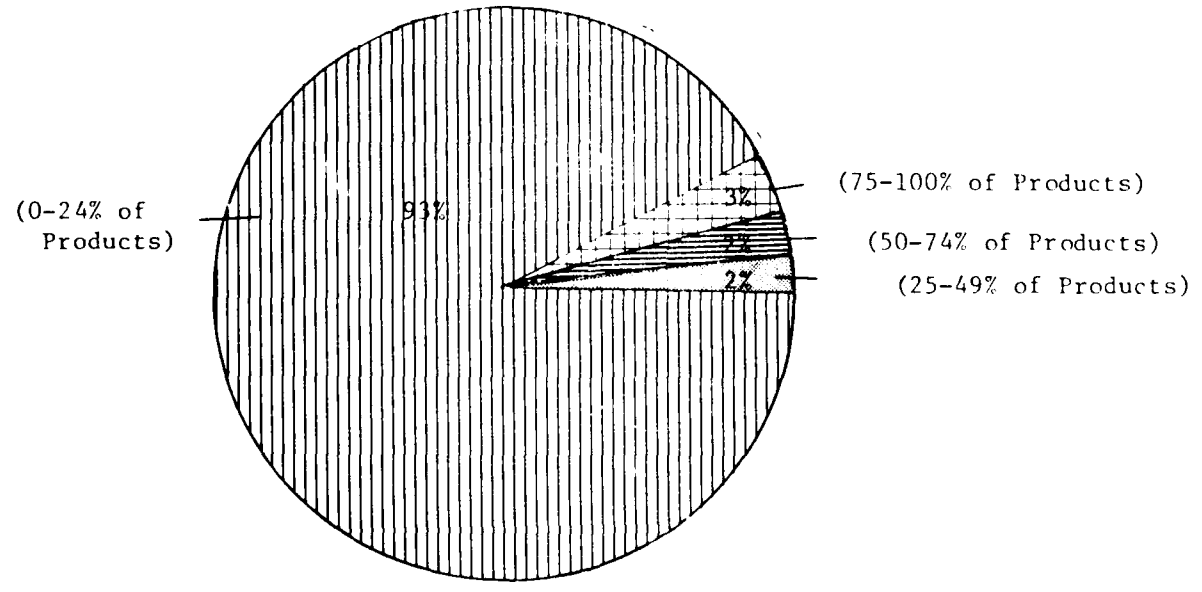


Figure 2-10: Percents of Small Businesses Providing Hybrid Metric Products



These particular businesses comprise the majority of the surveyed businesses. An explanation for hard metric product's prevalence over soft or hybrid products is simply the nature of the sample. These groups could be expected to either convert to hard metric or continue to carry customary products.

Another possible explanation may be found in the definitions of metric products. A product that has been produced or manufactured with a resulting physical change is relatively easy to recognize as a hard metric product. Soft and hybrid products are more difficult to identify because there is no change in the product and they may be handled, stocked, sold, etc. in a manner causing little change to a business's operations. Soft and hybrid products may not be easily recognized as a metric product.

The average percent of each type of product found in small businesses is presented in Table 2-6. A comparison is made to the recent survey of "Fortune 1000" manufacturing and mining firms.

Table 2-6: Comparison of Small Business Survey With "Fortune 1000" Survey

Product Description	Small Business Survey[a] Mean Percentage of Total Products	"Fortune 1000"[b] Large Business Survey Mean Percentage of New Products
Customary	59	59
Hard Metric	19	17
Soft Metric	16	18
Hybrid Metric	10	6

a. Due to some overlapping of responses, types of products do not equal 100 percent.

b. Source: King Research, Inc., U.S. Metric Board Survey of Selected Large U.S. Firms and Industries, 1980.

The findings are similar enough to cause speculation that the large industries' metrication influences small business activities in metrication. The sample of "Fortune 1000" companies are classified into the areas of Transportation, Consumer Products, Manufacturing and Production, Aerospace

and Electronics, and Entertainment. However, even in the groups which appear to be similar, as Transportation and Manufacturing, a matched comparison is not possible because the SIC groups of small businesses differ from the "Fortune 1000" groups in the standard by which businesses are categorized. Furthermore, the "Fortune 1000" listing is exhaustive of the largest companies while the small business sample is selected sectors. Decisions by giant firms may have at least a ripple effect on smaller firms. This has happened, for instance, in the automotive industry, where the multinational firms have made the decision to go metric, and suppliers of parts and metal goods have complied with the decision.

It is impossible to determine if this is what the current findings indicate because the data are not adequately matched. Independent, unrelated factors may be affecting both large and small businesses' metrication process.

2.2.3 When Small Businesses Start Metric Conversion

The process of converting to the metric system within an industry is generally thought to be a long transition over several years. However, within a business, the time required to convert may be of a shorter duration.

The more metric products a firm provides, the earlier it started providing metric products. (See Figures 2-11 and 2-12) For example, about half the firms with more than 75 percent of their products in metric units, started conversion more than three years ago. By comparison, only about one-fourth of the firms with less than 25 percent of their products in the metric system started conversion more than three years ago. The picture is more mixed for firms with metric products comprising 25 to 75 percent of their output; the mixed picture may result from the very small number of firms in the 25 to 75 percent range. The greatest number of firms is in the less than 25 percent group, while the second largest number of firms is in the more than 75 percent group.

Comparing the major metricated groups of manufacturing, wholesale trade, and retail trade, there is little variation in when they began providing, manufacturing, or designing metric products. The group percentages are consistant with the total percentages of, beginning conversion more than five years ago in 30 percent of the 228 metricated firms, beginning one to three years ago in 35 percent of firms, and beginning less than one year ago in 11 percent of firms.

Number of Years Ago Small Businesses Started Designing, Manufacturing, or Providing Metric Projects

Hard Metric Products
Soft-Converted Metric Products - - - - - -
Hybrid Metric Products . . . . . .

Figure 2-11: Percent of Companies With 0-25% Metric Products

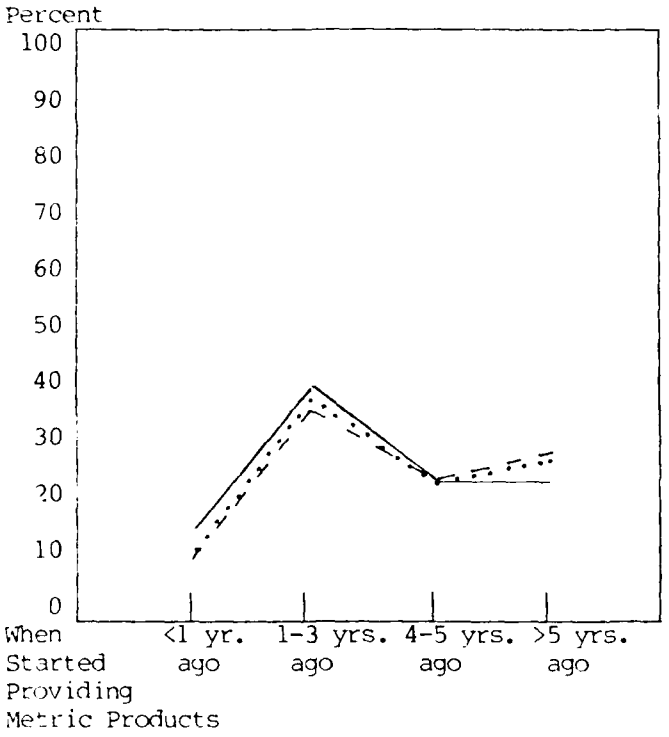
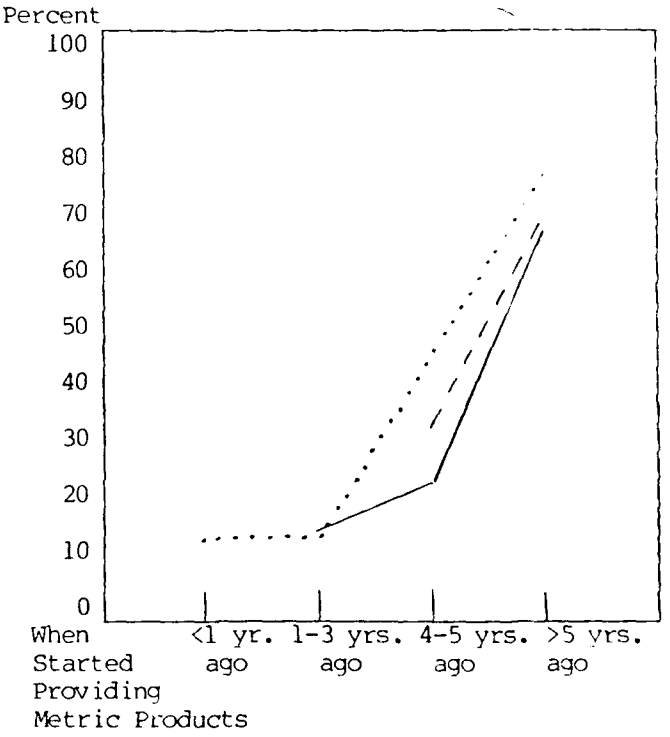


Figure 2-12: Percent of Companies With 75-100% Metric Products



2.2.4 Planning for Metric Conversion

In addition to examining small business status in metric conversion activities, another objective of this study is to determine whether small businesses not now converted have a plan to convert in the future. A plan was defined as a written statement or the holding of meetings to discuss conversion within two years. Of the 835 respondents answering the question, only about 1 percent have a plan to convert. Further analysis and description of issues surrounding the conversion plan is not possible because of the small number of businesses available for further delineation into categories.

Examining the businesses that indicated they have no plan to convert to the metric system, a significant follow-up question is why they are not planning to convert. The four reasons most often mentioned for not planning are: financial burdens; no demand from customers, industry, or suppliers; an additional workload burden; and general opposition to converting to the metric system. As the data in Table 2-7 indicate, the major reason for not planning to convert is "no demand from customers, industry or suppliers".

Table 2-7: Why Small Businesses Do Not Have a Plan to Convert[a]

Reasons for Not Converting	Percent[b]
No Demand From Customers, Industry or Suppliers	78
General Opposition to Conversion to Metric System	16
Financial Burdens	12
Additional Workload Burden	10

a. Number of respondents is 666.

b. Percents are not additive to 100, because some respondents reported more than one category.

Examining the five major groups of construction, manufacturing, transportation, wholesale trade, and retail trade, the reasons given for not having a metric plan were relatively uniform among them. Reasons for not having a plan to convert appear to be more generalized than industry specific.

To determine if participation in metric planning is related to long-range planning in general, data were collected regarding future planning of small businesses. If small businesses do not plan ahead in the management of their operations, the failure to plan for metric conversion may be just one part of a general philosophy of "taking one day at a time". Data regarding future planning are summarized in Table 2-8.

Table 2-8: Future Planning By Small Business Groups (Percent)[a]

Business Groups	No Future Plans	Length of Time in the Future			
		Less Than 1 Year	1-2 Years	3-4 Years	More than 5 years
Construction	12[b]	7	35	17	29
Manufacturing	8	22	33	15	23
Transportation	12	12	36	18	21
Wholesale Trade	11	13	38	15	23
Retail Trade	12	22	34	7	25
TOTAL	11	17	35	13	24

a. Percents are based on 1017 respondents.

b. Percents for each business group do not always equal 100 due to rounding.

As shown in the above table, 11 percent of the 1017 small businesses do not plan into the future. Seventeen percent plan up to one year in advance, and 35 percent plan one to two years ahead. However, almost one-fourth of all small businesses plan ahead more than five years. Although apporximately one-half of small busineses (52%) do not plan beyond two years, the general planning far exceeds metric planning. Therefore, lack of general future planning for a business could not explain the lack of planning for voluntary conversion. The primary reason for not planning to convert is simply no immediate demand for metric products.

The extent of general planning has additional implications for small business representation in the planning of voluntary conversion. Because 52 percent of small businesses do not plan beyond two years and metric conversion within an industry is thought to take place over a number of years, the question to raise is whether the short-term planning almost becomes a predilection against metric conversion, or if it

infers lack of preparedness should conversion become necessary through increased demand. Another consideration, as discussed in the previous section, is that small business does not convert by taking steps of structured planning; small business converts instead by the more informal steps of discussing costs with suppliers or customers, or considering the costs and benefits if they were to convert. The small business community seems to by-pass some of the intermediate formal steps of conversion. Rather small businesses may proceed from the more informal considerations and discussions to the actual provision or production of metric products.

2.3 Factors Which May be Related to Metric Conversion

The status of metric conversion activities in small business was discussed in the previous section. That section described the kinds of activites that are taking place and the types of businesses involved in voluntary metric conversion. However, a composite of "metric-oriented" businesses would have to include the factors which accompany metric conversion. What characteristics of businesses may be related to their conversion? While conversion is found most often in manufacturing, wholesale, and retail businesses, it is found in approximately one-fourth of these businesses. When some businesses within an industry convert, and others continue to deal in customary products, it is reasonable to ask what circumstances may explain the difference. Some selection from alternative courses of action is made according to the interests and capabilities of the business.

The reasons for converting or not converting are examined as an indication of the factors taken into account when a small business is making the decision of whether or not to convert. The financial cost of conversion is one measure of its impact, not only on the converting business, but on a larger scale for the entire industry. Costs incurred are therefore also discussed. The sales volume, the group or individual responsible for making the decision to convert, and membership in trade or business associations are also presented to help depict the conversion activities that are taking place.

2.3.1 Reasons for Converting or Not Converting

What are the deciding factors in small businesses deciding to convert? Metricated companies were asked the reasons they made the decision to begin designing, manufacturing, or providing goods or services in the metric system. The reasons given most often for converting are the demand from customers (24%), suppliers (16%), or industry (29%), to increase use of metric system and the desire to attract new markets (16%). These findings are further substantiated by the companies' responses to the hypothetical question, "Assume you have not metricated and have no plan to metricate. What circumstances might lead you to metricate?" Over half (57%) report demand from customers, suppliers, or manufacturers. Approximately one fifth (21%) report a government requirement

to convert, and one-fourth (25%) mentioned widespread practice of metric conversion within their industry. Only two percent said they would convert to increase foreign trade.*

From another perspective, non-metricated companies were asked to report the reasons why they have not converted, and the findings are parallel to reasons metricated companies report for conversion. "No demand" is the clear leader of reasons for not converting, but a substantial number of businesses also believe customers will be confused and suppliers are not ready. The reasons, presented in Table 2-9, are ranked in order of most to least often mentioned.

Table 2-9: Reasons Small Businesses Report for Not Metricating (Percent)[a]

Reasons Reported	Percent of Businesses
No demand for metric products by customers	56
Customers will be confused	30
Suppliers are not ready	28
Conversion will be costly	23
Training employees will be time consuming	22
Codes and standards will have to be changed	19
Conversion will result in dual inventory	17
Conversion will increase the price of the product	16
Conversions will result in safety hazards	9
Sales will be lost to foreign imports	2

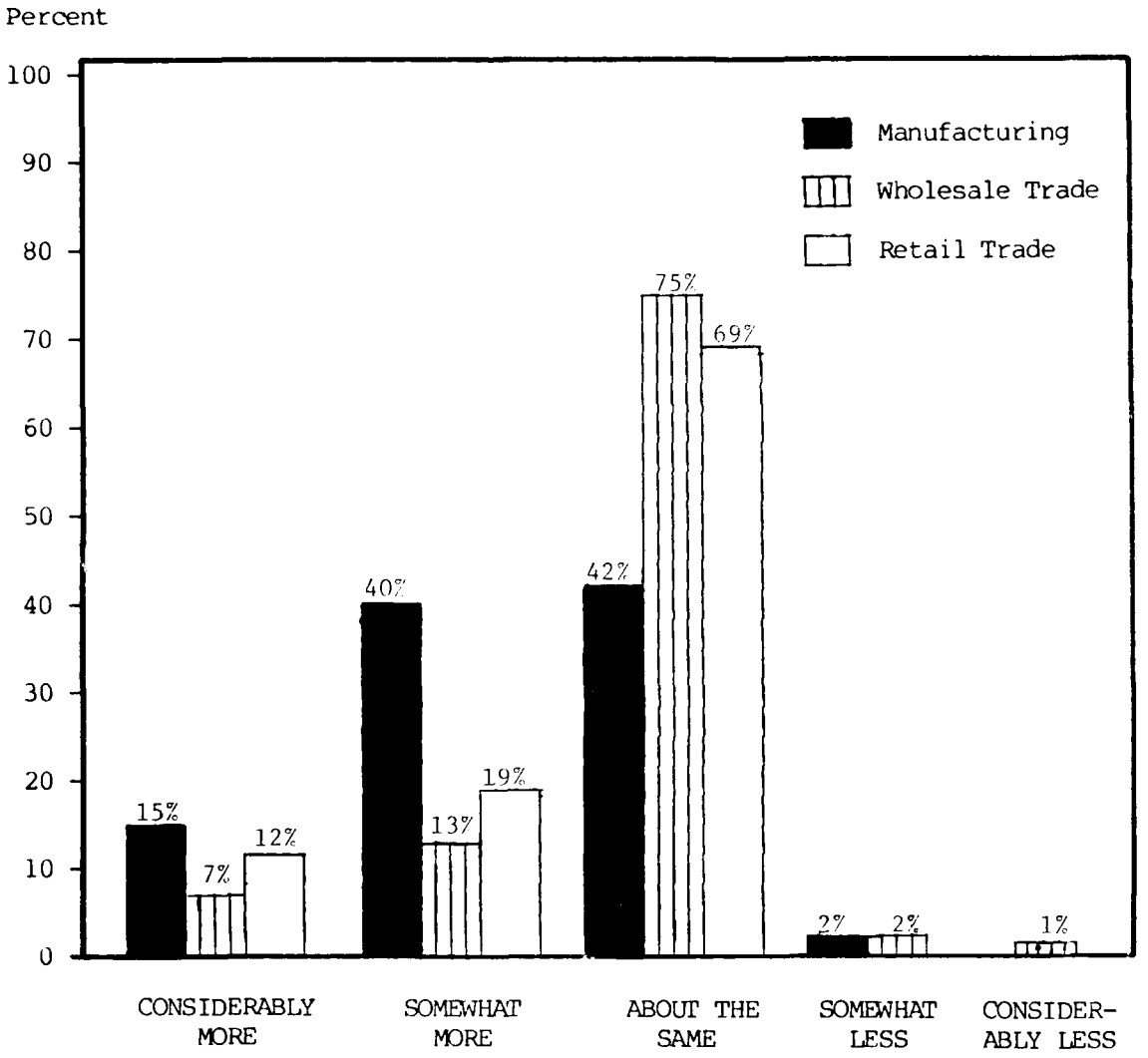
a. Percentages are not mutually exclusive, and therefore not additive.

2.3.2 The Costs of Metric Products and Planning

The majority (65%) said the cost of metric products and services were about the same as the cost of products in the customary unit of measurement. Twenty-three percent reported metrication as costing somewhat more, and 11 percent as costing considerably more. Two percent found it costing somewhat less or considerably less. Figure 2-13 displays the responses of all the three major metricated business groups.

*Percentages are not additive due to some respondents' reporting more than one reason.

Figure 2-13: Cost of Designing, Manufacturing, or Providing Metric Products Compared to Customary Products (Percent)[a]



a. Percents for each group not equal to 100, due to rounding.

Looking at the cost of planning in metricated businesses, 11 percent developed their own plan, 22 percent adopted an industry plan and, 66 percent did not have a plan. Of the 77 businesses (35%) that report having a plan, 13 businesses report some cost in adopting or developing their plan. Five companies reported costs as being under $1,000. Three companies had costs of $1,000 to $1,999, one company's plan cost $2,000 to $2,999, one cost $3,000 to $3,999, and lastly, 3 companies report costs over $5,000.

2.3.3 Decision-Maker for Metric Conversion

Who had the primary responsibility for making the decision to convert? If information or assistance were needed, who would be the person making the request?

Approximately 90 percent of the businesses report one individual as being the decision-maker: the business owner in 41 precent of metricating businesses and the president in 38 percent of the cases. The vice-president and division manager were each reported as the decision-maker in approximately 10 percent of the cases.

2.3.4 Association Membership

Another factor related to conversion is that of membership in trade or business associations. Compared to the 23 percent of all businesses with metric products, 29 percent of businesses that are members of associations have metric products. This is more relevant when compared to the 16 percent of non-member businesses that deal in metric products. The findings in this area can be summarized in the following key points: Almost one out of three association members provides metric products; one out of six non-members provides metric products. A metrically converted business is more likely to belong to an association: 63 percent of converted businesses are members, while 44 percent of "customary" businesses are members. It would be reaching too far to imply that one factor directly acts on another. The findings may even be "happenstance" and related to factors not examined in the survey.

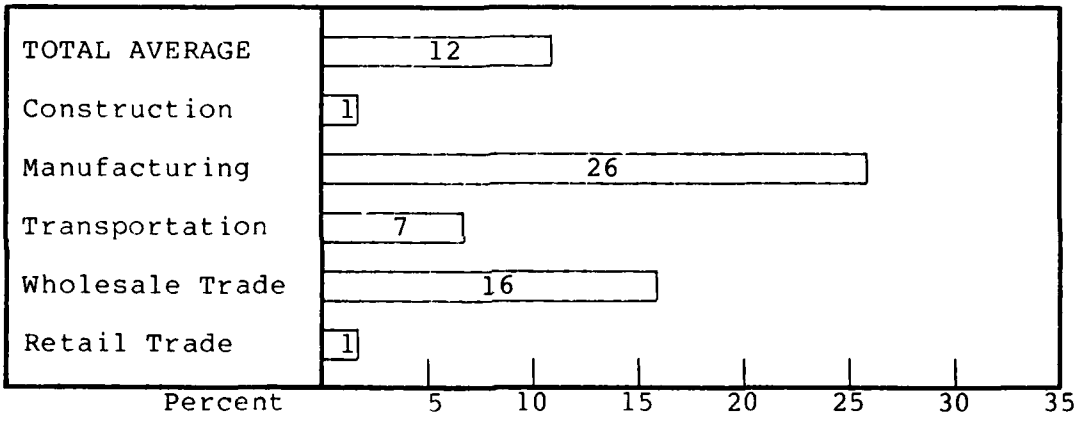
2.3.5 Business Size and Overseas Sales Related to Metric Conversion

Businesses with overseas sales would seem prone to carry converted products for their foreign customers or to receive products in metric units from a foreign supplier. To test this assumption, information pertaining to foreign sales was examined. As discussed in Section 2.1, one strong influence on trade and business association membership is sales volume. That is, businesses with a higher sales volume are more likely to join associations than are those with a lower volume. Section 2.3 presented findings relating membership

to metric product provision. Therefore, sales volume is examined to determine if it is related to businesses' conversion. First, findings are presented in the descriptive mode of characterizing small businesses in the study. Then the relationship of those characteristics to metric conversion is brought forward.

Of the 89 percent of the total sample that responded to the question, 12 percent reported having overseas sales. Comparing the five major groups of businesses, large differences were found in the number reporting overseas business. As Figure 2-14 indicates, manufacturing and wholesale trade, and to a less extent transportation, are the prominent groups having overseas sales.

Figure 2-14: Businesses With Overseas Sales Percent[a]



a. Total n=1039.

When overseas sales are examined in relation to whether or not a business is metricated, a clear relationship is apparent. Forty percent of businesses with overseas sales are dealing in metric products to some degree. This is more striding when compared to the average of 23 percent of all small businesses having metric products, presented in Section 2.2.

Sales volume and personnel data were obtained for all businesses from Dun and Bradstreet's files of small businesses. Overall, the majority of small businesses surveyed have 25 or fewer employees; eighty-nine percent of businesses are in this range. Businesses with 26 to 50 employees are a distant second with only 7 percent of the businesses. The other

categories of 51 to 75 employees and 76-100 employees, are mentioned only in 2 percent and 1 percent of businesses, respectively. The number of employees was not found to vary on the basis of metric conversion activity.

Sales volume, as summarized in Table 2-10, is mostly concentrated in the range of $100,000 to $499,999. The pattern is similar in the five business groups, except for transportation businesses where sales volume is found to be under $100,000 in approximately one-third of the businesses.

There is not a relationship between sales volume of the small businesses and the metric conversion activities they practice. Sales volume strongly influences membership in associations, and membership is somewhat related to whether or not a company converts. However, sales volume does not have an effect on conversion. The reasons for this pattern are not available to this analysis.

Table 2-10: Sales Volume of Small Businesses[a] (Percents)[b]

SALES VOLUME	ALL BUSI-NESSES	CONSTRUC-TION	MANUFAC-TURING	TRANSPOR-TATION	WHOLESALE TRADE	RETAIL TRADE
Less than $100,000	16	15	20	34	13	15
$100,000 to $499,999	40	40	30	29	41	49
$500,000 to $999,999	16	15	16	16	17	14
$1,000,000 to $4,999,999	18	23	23	10	20	14
$5,000,000 to $10,000,000	3	3	4	3	1	2
Over 10,000,000	1	-	2	-	2	1
Sales Volume Not Available	6	4	6	9	6	5

a. Number of total businesses is 1097.

b. Percents do not always total 100 because of rounding.

2.4 Assistance for Small Business in Metric Conversion

Another hypothesis the study was designed to test is that "adequate information and assistance are available to help small businesses plan and convert to the metric system". To test this hypothesis, businesses were queried about the types of assistance they have received or expect to receive and the source of such assistance. It was expected that the answers, in addition to testing the hypothesis, would provide useful information for the U.S. Metric Board on the needs of small businesses as they are affected by the increasing use of the metric system. The study examines the assistance received by businesses that design, manufacture, or provide products or services in metric measurement.

Before considering the question of assistance received, it is useful to determine if there was a need for assistance. Respondents were therefore asked to describe the problems or difficulties they had to overcome in converting to the metric system. Approximately half of the businesses that provide metric products or services stated that they encountered some problems in converting. The problems ranged from difficulties with business operational adjustments, such as dual inventory and employee training (41%) to economic problems (22%). Another problem mentioned by a small number (3%) of businesses was that of changing the attitude of the employees as well as the customers, i.e., resistance to change.

2.4.1 Type of Assistance Received by Metricated Businesses

To help the Metric Board carry out its responsibility of coordinating the increasing voluntary use of the metric system, it was felt that it would be useful to know what small businesses need when they decide to convert. Small businesses that had problems were asked about the assistance they received in solving their problems. The assistance covers financial and technical areas, personnel training, and general information. The technical assistance could have been provided through published memoranda and manuals, or informally through advice and consultation as problems with conversion arose. As presented in Table 2-11, less than 10 percent of the small businesses received either financial, technical, or personnel training assistance, but "general

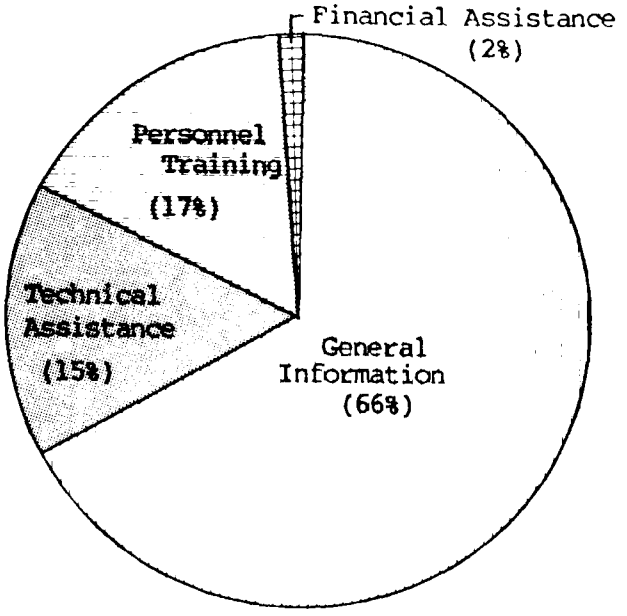
Table 2-11: Type of Assistance Received[a]

Type of Assistance	YES		NO		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Financial Assistance	3	1	241	99	244	100
Technical Assistance	18	7	226	93	244	100
Personnel Training	20	8	224	92	244	100
General Information	78	32	166	68	244	100
Other	15	6	229	94	244	100

a. Since more than one type of assistance could be received by some businesses, the numbers and percents are not additive.

information" was cited by 32 percent. The 6 percent that received "other" assistance reported miscellaneous items like "bolts" and "catalogs". Looked at from another perspective, (Figure 2-15), the majority (66%) of the assistance received by small businesses to help with problems of metric conversion was in the form of general information. About 32 percent received assistance in the form of personnel training and technical assistance.

Figure 2-15: Assistance Received by Metricated Businesses



2.4.2 Source of Assistance for Metricated Businesses

It is also important for the Metric Board to know the source from which small businesses received assistance when they were faced with problems related to conversion.

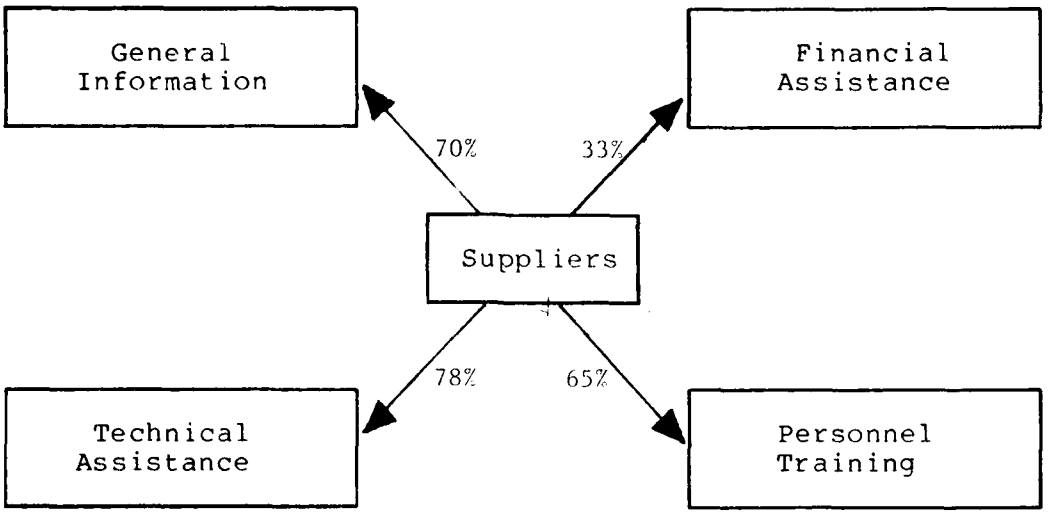
Suppliers and customers are the principal sources of assistance for the small businesses. Assistance was virtually non-existant from government organizations, trade unions, and financial institutions. Table 2-12 depicts this distribution. As apparent from Figure 2-16, the assistance provided by suppliers is not limited to one type. In fact, suppliers provided the majority of all the different types of assistance received except financial assistance for which customers provided 67 percent.

Table 2-12: Source of Assistance Received[a]

	YES		NO	
Source of Assistance	Number	Percent	Number	Percent
Government Organizations	1	<1	227	>99
Trade Unions	1	<1	227	>99
Finanical Institutions	2	1	226	99
Customers	21	9	207	91
Suppliers	80	35	148	68

a. Since more than one type of assistance could be received by some businesses, the numbers and percents are not additive.

Figure 2-16: Proportions of Assistance Provided by Suppliers

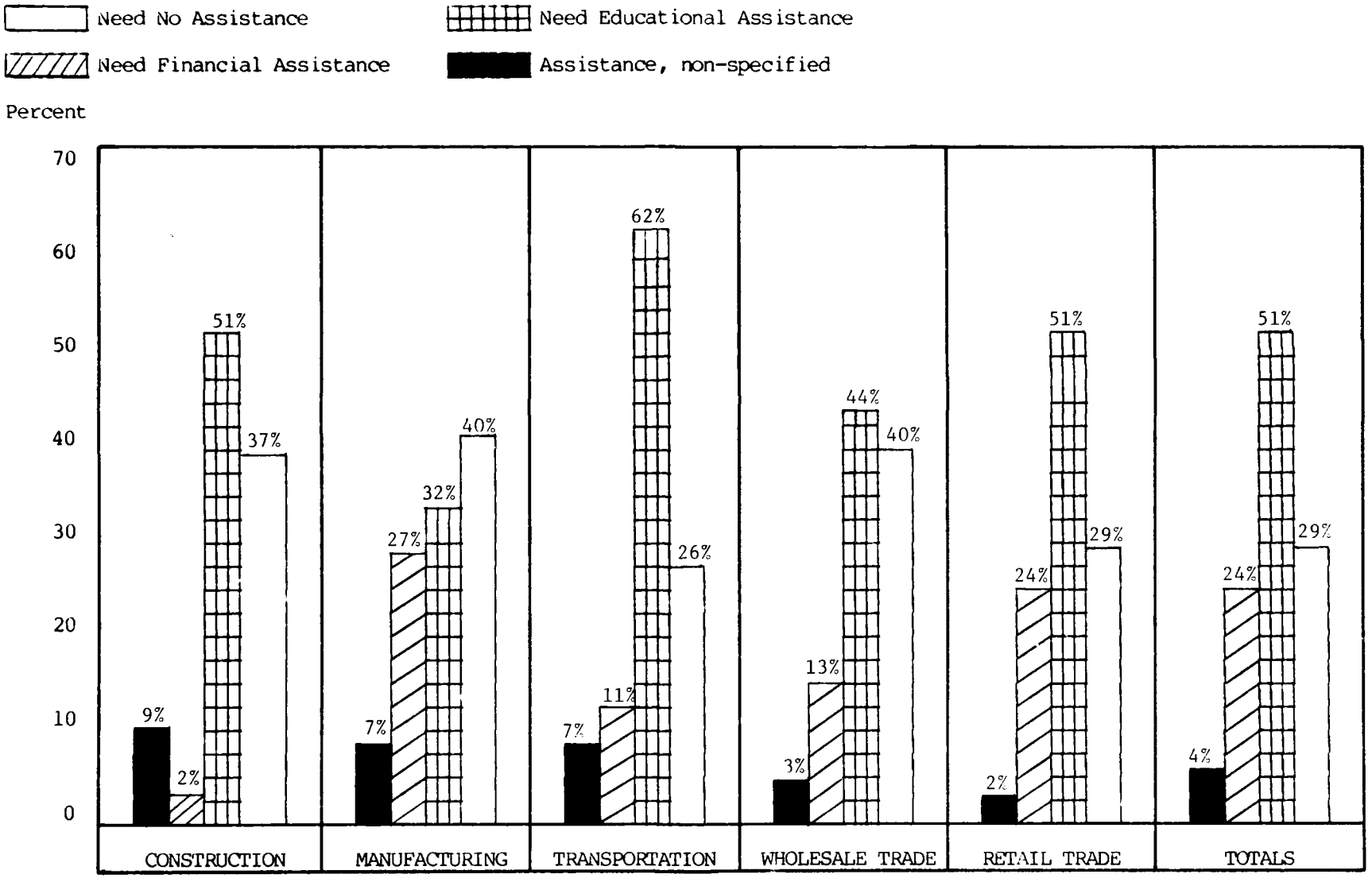


The study gathered data on the types of assistance that businesses received in developing their plans for metric conversion. As discussed in Section 2.3, a very small number (1.4%) of the businesses developed a plan to convert, and the data gathered on the assistance they received in developing the plan is inadequate for separate analysis.

2.4.3 Assistance Small Businesses Would Need if Pressure to Voluntarily Convert Was Exerted on the Businesses

The picture that emerged from our discussion of why small businesses design, manufacture, or provide goods or services in the metric system is that most of them act as a result of demand from customers and availability of metric products from suppliers. It is interesting to note that most of the assistance needed by the businesses was accordingly provided by the suppliers and customers. Then a hypothetical situation was examined: "If a small business has not already metricated or does not have a metrication plan, and extreme pressure to voluntarily convert to the metric system is exerted on the business, what assistance would it need to enable it to successfully convert...?" This hypothetical question would provide the basis for a comparison of the assistance that small businesses received when they converted and the assistance businesses would need to help with metric conversion if pressured to convert.

Figure 2-17: Type of Assistance Small Businesses Would Need if Converting to Metric System Under Pressure[a] (Percent)[b]



a. n=593.

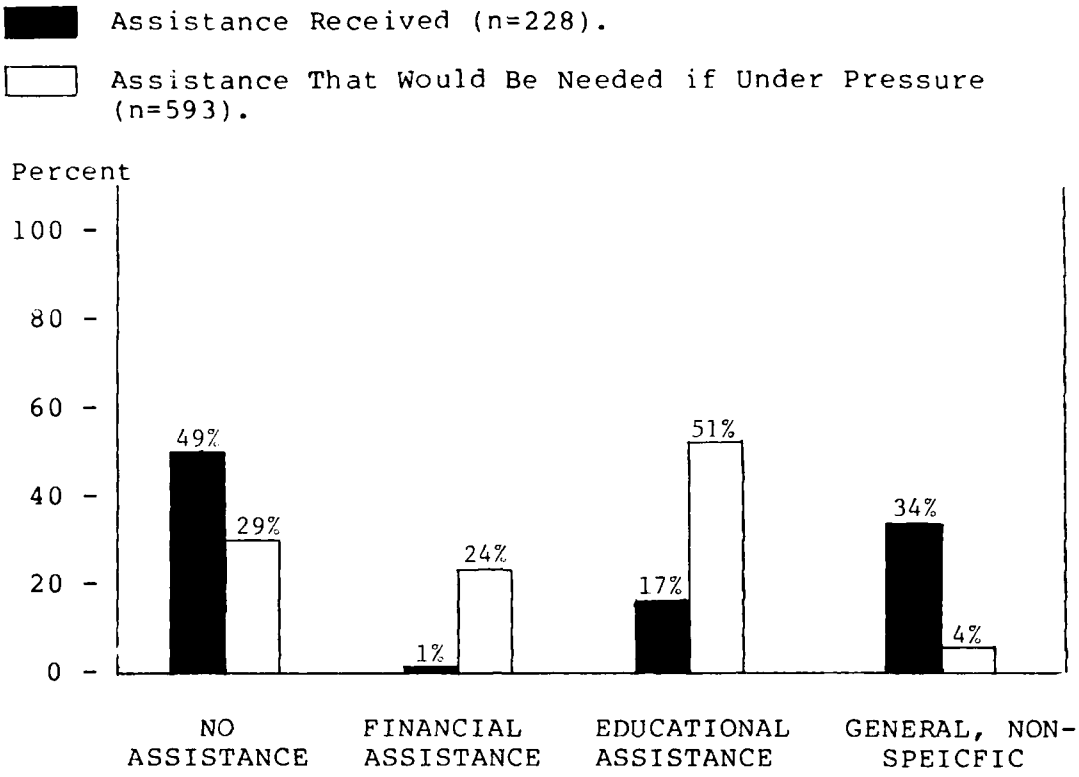
b. Percents are not additive because businesses may indicate needing more than one type of assistance and due to rounding.

The types of assistance that small businesses felt they would need if faced with extreme pressure to convert is presented in Figure 2-17. Educational assistance was mentioned most often by the respondents (51%). The educational assistance could be formal as in the training of employees or informal as in the provision of manuals and conversion charts. Twenty-four percent feel they would need financial assistance in the form of loans and tax credits. Almost one-third (29%) feel they would not need any type of assistance if they had to convert under extreme pressure.

Construction and transportation businesses feel they would need educational assistance more than financial assistance. Manufacturers, however, feel they would have relatively equal need for both financial and educational assistance. A stronger need for educational rather than financial assistance is found in wholesale trade and retail trade by ratios of approximately 3:1 and 2:1, respectively. These findings appear to be consistent with the relative labor and capital characteristics of the business groups.

The type of assistance small businesses received when they designed, manufactured, or provided products or services in the metric system as compared to the types of assistance they feel they would need if faced with extreme pressure to convert is presented in Figure 2-18. This figure shows that while only 17 percent of businesses have received educational assistance in converting, a majority (51%) of small businesses feel they would need educational assistance in converting under pressure.

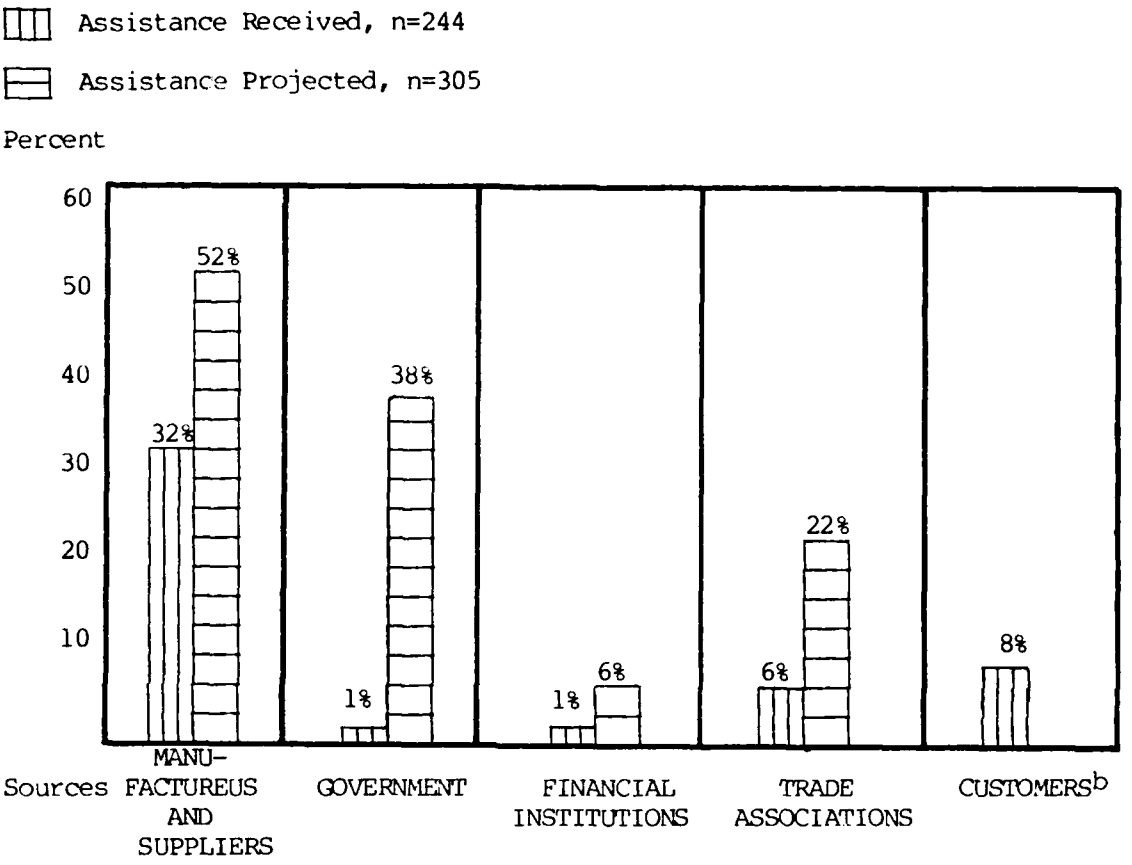
Figure 2-18: Comparison Between Assistance Received and Assistance Needed if Converting Under Pressure[a]



a. Percents are not additive because some businesses received or would need more than one type of assistance.

The next question then is, "from what sources would small business seek such assistance?" It was felt that the answer to this question would provide the Metric Board with important data on what sources it might use to disseminate information on metric conversion. As apparent from Figure 2-19, 52 percent of the respondents said they would seek assistance from manufacturers and suppliers. Over one third (38%) would seek assistance from the Government. Federal, on State, local government, the U.S. Small Business Administrati and the U.S. Metric Board were included in this category of government agencies. Approximately one in five (22%) indicated trade associations as a potential source of assistance. About one in twenty (6%) mentioned banks or savings and loan institutions as a possible source of such assistance.

Figure 2-19: Comparison of Sources of Assistance Received by Metricated Businesses and Sources Projected if Businesses Metricate Under Pressure (Percents)[a]



a. Percents are not additive, due to multiple or zero number of categories possible for each respondent.

b. Customers is a category not mentioned as a projected source of assistance.

It is interesting to compare these findings with our previously discussed findings of assistance received by businesses that have already converted. Suppliers were the source of assistance for about one third (32%) of the metricated companies. Government was mentioned as a source of assistance to a negligible degree (less than one percent). Customers were reported to have been a source of assistance by 7 percent of metricated business. Figure 2-19 presents the detailed comparison of the source of assistance received by metricated business and the source of assistance desired if converting under pressure.

The figure reveals some interesting observations. First, when under pressure to convert, small businesses would not seek assistance from customers. Second, more small businesses would seek assistance from government agencies when faced with extreme pressure to convert. This may reflect a general attitude that Government can and does provide assistance for small business that are under "extreme pressure".

III. IMPLICATION OF FINDINGS

The survey findings have been presented in detail in the preceding chapters. What conclusions can be drawn? What are their implications for the future? What suggestions for the Metric Board emerge? Set forth here are several observations, some already mentioned in the text, based on the findings believed to have implications for understanding the issues of metric conversion for small businesses. The chapter concludes with a discussion of noteworthy aspects of the survey - strong points worth considering in future surveys. However, the weaknesses are also considered, and should be equally instructive.

3.1 Discussion of Conclusions

With the exception of the United States and a few small countries, the world has converted, or is in the process of converting to metric units of measurement. Even though there is an increasing use of some version of the metric system in this country, the policy has been that of voluntary conversion. "Voluntary", however, is relative. Some small businesses may be able to make the decision independently, others may be effectively forced to metricate or not to metricate because of decisions made by larger corporations that are either suppliers or clients, or by the requirement of international trade. Because of the possibility of having their hands forced by outside factors, the question of representation of small businesses in deciding whether or not to metricate becomes important.

The first question to ask is, "what is representation?" For purposes of this study, representation may mean one or two things; either the businesses' own involvement in developing plans for voluntary metric conversion or the small businesses' utilization of an organization or association for the express purpose of relaying or communicating views on metric conversion, including desired information or assistance.

The study found that only 7 percent of small businesses or the associations to which they belong are involved in developing plans for voluntary metric conversion. Almost 90 percent of small businesses feel they do not have a forum for presenting their views on the planning for voluntary metric conversion. Of the small percent that have a forum, only 6 percent feel they are well represented. The survey further found that the majority of the small businesses believe they should be well represented in the planning process.

These findings support the hypothesis that small businesses are not adequately represented in the planning for voluntary metric conversion and also point to the need for representing small businesses in this important process. Some recommendations from the small businesses are:

- Representation through trade associations;
- Provision of better educational materials;
- Having a better voice in Government policies and associations; and
- Conducting a needs assessment survey of small businesses.

While these recommendations are direct, the implementation of each one is rather complex and requires the consideration of several factors. For example, "provision of better educational materials" requires an understanding of what is meant by "better", who should be responsible for providing the materials, and what channels should be used for distributing the materials. Some important factors to be considered in providing educational materials are: the assurance that the materials are of a nature that businesses do not consider them as a way of suggesting whether or not they should convert, and a careful evaluation of the needs of the different businesses (educational material considered appropriate for a manufacturing firm may not be useful to a retail trade firm).

That approximately one-fourth of the surveyed businesses have some metric products is one of the more substantive findings. The firms having any conversion include a broad spectrum of manufacturing, wholesale, and retail businesses, many of which could be placed under the rubric of durable goods--machinery, metal products, or automotive parts.

In spite of the fact that only 25 percent or less of a firm's products are converted, approximately one half of metricating businesses report having experienced some difficulties, although not of a magnitude causing damage to the business. Most wholesale and retail small businesses report metric products as costing about the same as customary products, but just over half of the manufacturing firms report costs of metric products as being higher. Since suppliers of metric products are the major source of assistance, manufacturers may incur more costs in providing information and other types of assistance to their customers.

When asked about assistance needed if they were to convert under extreme pressure, small businesses expressed a much greater need for government assistance than had been received by converted companies thus far. This assumed need raises the issue of small businesses' resources for extensive conversion. Conversion under extreme pressure may imply the conversion of a large percent of the firm's products, and thus suggests an increase in the assistance required. This lays the groundwork for the hypothesis that small businesses do not have the resources to undergo an extensive conversion of their products without considerable support.

The total picture that emerges is of small business not being informed of, or represented in, the planning for voluntary metric conversion. There is an expressed interest in representation, if not necessarily to convert, at least to have a voice in the planning issues. Some businesses may in fact want representation so they may oppose metric conversion. Up to the present, businesses that deal in metric products have encountered some difficulties but have not suffered permanent damage. Excepting manufacturing firms, most have not incurred greater costs in purchasing metric products. Small businesses convert to the dictates of the demand from suppliers, customers, or an industry. If under extreme pressure to convert, they would experience hardships or require considerable assistance. Added to the fact that small businesses are not well represented in the planning for voluntary conversion, a potential problem exists in small businesses' lack of preparedness, especially if an industry were to undergo rapid conversion trends.

These findings point to the need for an educational program aimed at informing the small businesses of the Government's responsibility in coordinating the conversion process. Since there is an increasing use of the metric system in this country, the above findings seem to suggest the need for informing the small business community of the potential opportunities for converting to the metric system as well as informing them of the possible adverse effects resulting from increasing metric usage. Small businesses well informed of the advantages and disadvantages of converting can make decisions that are most beneficial them.

3.2 Recommendations

In offering recommendations that would help the U.S. Metric Board to carry out its responsibility as coordinator of increasing voluntary use of the metric system, attention is directed to the specific recommendations made by the small businesses for better representation.

- From the perspective of small businesses, they are not represented in the planning for voluntary metric conversion. They see a need for their representation and they seem to agree that this could be achieved through setting a goal of contacting trade and business associations, especially those with small business membership, and providing them with information on the increasing use of the metric system. The associations should be encouraged to channel the information to their members. The list of associations that was compiled from the survey will be very useful in implementing this recommendation.

- There is some confusion in the minds of small business respondents as to the role of the U.S. Metric Board. Many businesses perceived the Board as having some power of enforcement in the conversion process and reacted negatively to that presumed power. The Board therefore needs to work towards improving the understanding of its role as a coordinator of voluntary conversion.

3.3 Considerations for Future Research

The primary purpose of this survey was to determine issues confronting small businesses in converting to the metric system and planning activities underway in preparing to metricate. It has the additional important function of providing an informational base of trade associations and business organizations having small business membership. The survey was useful in the collection of information about association membership in relation to planning activity.

It also sharpened our concept of planning in the small business community. If planning is defined as a structured, organized transition through predictable stages, small business cannot be described as having plans for metric conversion. However, if planning is seen from a broader perspective of "general planning ahead for the future", as in thinking ahead or discussing possible contingencies, some small businesses can be described as having relatively unstructured planning activities. Future research in the area of planning activities in the small business community should take these broader insights into account.

Respondents reporting some metric conversion at present were instructed to skip questions pertaining to future, structured planning for conversion. Those businesses with conversion activities are perhaps prone to planning for increased metrication, if conversion happens by partial, gradual steps. Another consideration for future research in planning for metric conversion is the use of a sufficiently broad concept of planning that would apply to all businesses surveyed, regardless of their current status in metrication activities.

In addition to the area of planning, two other areas lend themselves to the possibility of further investigation and effort. More precise definitions are needed for the concepts of metrication activities and conversion. Enough knowledge has been gained in this study to redefine these concepts more carefully and concisely.

Metrication and conversion are at present "umbrella" concepts and must therefore be explained with modifying descriptions. This not only tends to make analytical interpretation cumbersome, but possibly limits the respondent's understanding of the concepts. In fact, on the basis of this study, the contractor believes "a red flag" should be raised

as a caution about the definition of "conversion" in future research. Very few of the "converted businesses" had more than 25 percent of their total products in metric units. The concept of conversion may become troublesome if it is applied to diverse quantities and types of metric products.

In summary, while the concept of planning has been refined enough to allow a broad application, the concepts of conversion and metrication could benefit from increased specificity in future research.

APPENDIX A

Methodology

Sample Design
Data Collection
Sample Parameters and Response Rate

SAMPLE DESIGN

Two factors affected the selection of the small business respondent universe. First, the purpose of the study was to assess the problems and issues confronting small businesses in converting to the metric system, so only the types of businesses that were thought to have some metric activities were included in the sample. The project advisory committee supplied guidelines for selection of the five major groups--construction, manufacturing, transportation, wholesale trade, and retail trade. Second, one major purpose of the study was to provide the U.S. Metric Board with recommendations based on the needs and activities of small businesses. Therefore, the sample was also designed to be representative of the national small business population in the selected five areas so that recommendations are useful in helping the Board plan national policy.

The small business universe was selected from Dun and Bradstreet Corporation's file of small business firms. The Dun and Bradstreet file was the most comprehensive listing of small businesses available. The file contains approximately 2.4 million firms which are classified as small businesses under the current U. S. Small Business Administration Size Standards.

Dun and Bradstreet use Standard Industrial Classification (SIC) codes for categorizing businesses. Ten specific two-digit SIC classes were selected from five major areas. The sample size was 2500 small businesses selected on a random probability basis and distributed throughout the five major groups so as to be representative of the universe population of 725,516. The 2500 firms are listed in Table A-1 in relation to the total population.

Table A-1

Small Business Group	SIC Code	Sector	Percent	Universe Pop.	Survey Sample
CONSTRUCTION	15	Building Construction General Contractors	6.81	49,390	170
MANUFACTURING			(18.70)	135,671	(468)
	24	Lumber & Wood Products	3.54	25,707	88
	28	Chemical & Allied Products	1.51	10,948	38
	34	Fabricated Metal Products	4.38	31,779	110
	35	Machinery, except Electrical	7.13	51,717	178
	36	Electrical & Electronic Machinery	2.14	15,520	54
TRANSPORTATION	42	Motor Freight Transportation	7.21	52,281	180
WHOLESALE TRADE	50	Wholesale Trade - Durable Goods	31.16	226,049	779
RETAIL TRADE			(36.13)	262,125	(903)
	52	Building Materials	10.75	77,966	269
	55	Automotive Dealers	25.38	184,159	634
		TOTALS	100.01	725,516	2500

DATA COLLECTION

A self-administered questionnaire was mailed to the chief executive of each business selected for the survey sample. The name of the chief executive was listed on the Dun and Bradstreet tape. The questionnaire was reviewed by the Advisory Committee and pretested on nine small businesses. The pretest demonstrated that the respondent burden was between 15 to 30 minutes. The questionnaire is included in Appendix B.

A response rate of 55 percent was achieved using the following instruments:

1) An introductory cover letter. A personalized and carefully worded introductory letter was sent to each chief executive of a small business. The letter emphasized the sponsorship of the study by the U.S. Metric Board and enhanced the probability of their cooperation by discussing the importance of the study to small businesses.

2) The questionnaire. The questionnaire accompanied the cover letter with a stamped, self-addressed return envelope. The questionnaire was made aesthetically pleasing with questions stated in a conversational, easy to understand manner. The questionnaire items were tied directly to input and advice from the Advisory Committee. The questions were a result of an exhaustive list of objectives and hypotheses gathered from committee members at the onset of the study.

The data collection activities included an inital mailing of the letter and the questionnaire, and two follow-up mailings used to raise response rate.

a. Data collection was started by sending a cover letter and questionnaire to each business executive in the sample.

b. Three weeks after the first mailing, a follow-up mailing was done. A different letter and replacement questionnaire were sent to all non-responding executives.

c. Six weeks after the inital questionnaire had been sent, another letter and replacement questionnaire were sent.

d. At the end of nine weeks, direct phone calls were made to encourage those who had not replied to complete the questionnaire. Items in the questionnaire which were not completed were also followed-up by phone if they were important to the issues in the analysis.

The following chart displays the data collection plan and the actions taken to assure an adequate response rate.

TIME ELAPSED

Chart A-1

		Three Weeks	Six Weeks	Nine Weeks
Actions Taken	First Mailing	Follow-up Mailing: Different letter and replacement questionnaire sent	Follow-up Mailing: Different letter and replacement questionnaire sent	Telephone Follow-ups

SAMPLE PARAMETERS AND RESPONSE RATE

The initial small business survey sample of 2500 was selected from ten SIC codes of the Dun and Bradstreet file: Construction--Building General Contractors; Manufacturing--Lumber and Wood Products, Chemicals and Allied Products, Fabricated Metal Products, Machinery, except electrical, Electronic Machinery; Transportation--Motor Freight Transportation; Wholesale Trade--Durable Goods; and Retail Trade--Building Materials and Automotive Dealers.

From the initial sample used in the first mailing, those addresses returned as "non-deliverable" and "out-of-business" were removed. The remaining useable or effective sample differed from the initial sample's SIC distribution by less than 2 percent in all of the sectors.

This loss from the initial to the effective samples is a consideration for future samples of small businesses. It may reflect the transience or closures of small businesses in an inflationary economy, or it may raise some questions about the adequacy of procedures used in up-dating small businesses sample files.

Regardless of the factors contributing to sampling error, the respondents represent a distribution pattern very similar to the universe population and initial sample. Automotive Dealers had the lowest response rate in relation to both the effective and initial sample size. The sector of Machinery, except Electrical, had the highest response rate, with Fabricated Metal Parts next highest. However, these percents must be interpreted carefully because of the obvious difference in the number bases from which the percents are derived.

The average response rate was 55 percent inclusive of all the sample sectors. There is not an appreciable loss or clustering of respondents in any of the sectors. The 55 percent response rate, therefore, is relatively uniform and representative of the effective survey sample population. (See Table A-2 for complete listing of response rates.)

RESPONSE RATE DESCRIPTION

Table A-2

SIC	UNIVERSE POPULATION	% OF TOTAL UNIVERSE	INITIAL SAMPLE	EFFECTIVE SAMPLE (Initial Excluding Drop-out)	% OF TOTAL EFFECTIVE SAMPLE	NUMBER OF RESPONDENTS	% OF TOTAL RESPONDENTS	RESPONSE RATE
15	49,390	6.81	170	129	6.43	65	5.94	50%
24	25,707	3.54	88	56	2.79	35	3.20	63%
28	10,948	1.51	38	34	1.69	16	1.46	47%
34	31,779	4.38	110	88	4.39	55	5.02	64%
35	51,717	7.13	178	152	7.58	99	9.04	65%
36	15,520	2.14	54	43	2.14	26	2.37	60%
42	52,281	7.21	180	132	6.58	72	6.58	54%
50	226,049	31.16	779	668	33.30	352	32.15	53%
52	77,966	10.75	269	231	11.52	135	12.33	58%
55	184,159	25.38	634	473	23.58	240	21.91	51%
	725,516	100.01	2500	2006	100.00	1097	100.00	55%

COMPOSITION OF SURVEY RESPONDENTS

CONSTRUCTION

Building Contruction - General Contractors

DESCRIPTION	SIC	NO. OF RESPONDENTS
Single Housing Construction	1521	44
Residential Construction	1522	5
Industrial Buildings	1541	4
Nonresidential Construction	1542	12
		65

MANUFACTURING

Lumber & Wood Products

DESCRIPTION	SIC	NO. OF RESPONDENTS
Logging Contractors		
Sawmills	2411	4
Hardware Flooring	2421	8
Millwork	2426	1
Wood Kitchen Cabinets	2431	7
Structural Wood	2434	3
Wood Boxes	2439	1
Mobile Homes	2441	2
Wood Products	2451	1
	2499	8
		35

MANUFACTURING

Chemicals & Allied Products

DESCRIPTION	SIC	NO. OF RESONDENTS
Industrial Gases	2813	1
Plastics Material	2821	1
Pharmaceutical Preparations	2834	1
Soap Detergent	2841	1
Cleaning Sanitation	2842	3
Toilet Preparations	2844	1
Paint & Allied Products	2851	3
Fertilizers	2875	2
Adhesives	2891	1
Printing Ink	2893	1
Chemical Preparations	2899	1
		16

MANUFACTURING

Fabricated Metal Products

DESCRIPTION	SIC	NO. OF RESPONDENTS
Cutlery	3421	1
Hand & Edge Tools	3423	1
Hand Saws	3425	1
Hardward	3429	3
Plumbing Fixtures	3432	1
Fabricated Structural Steel	3441	2
Metal Doors	3442	2
Fabricated Plate Work	3443	3
Steel Metals	3444	5
Architectural Metal Work	3446	1
Metal Buildings	3448	1
Machine Products	3451	4
Iron and Steel Forgings	3462	1
Metal Stampings	3469	8
Plating & Polishing	3471	6
Metal Coating	3479	3
Valves	3494	5
Wire Products	3496	2
Pipes & Fittings	3498	1
Fabricated Metals	3499	4
		55

MANUFACTURING

Machinery, Except Electrical

DESCRIPTION	SIC	NO. OF RESPONDENTS
Farm Machinery & Equipment	3523	5
Construction Machinery	3531	1
Oil Field Machinery	3533	1
Conveyors & Conveying Equipment	3535	1
Machine Tools, Metal Cut	3541	6
Machine Tools, Metal Forming	3542	1
Special Dies	3544	12
Machine Tool Accessories	3545	8
Metalworking Machinery	3549	2
Food Products Machinery	3551	1
Textile Machinery	3552	2
[illegible]ry, Special Industries	3559	1
Pumps and Pumping Equipment	3561	2
Air and Gas Compressors	3563	1
Exhaust and Ventilation Fans	3564	1
Industrial Patterns	3565	3
Speed Gear Changers	3566	2
Industrial Furnances and Ovens	3667	2
Industrial Machinery and Equipment	3569	3
Commercial Laundry Equipment	3582	2
Refrigeration and Heating Equipment	3585	3
Machines, Service Industry	3589	3
Machinery, Except Electrical	3599	36
		99

MANUFACTURING

Electrical and Electronic Machinery

DESCRIPTION	SIC	NO. OF RESPONDENTS
Transformers	3612	2
Switchgear	3612	2
Industrial Controls	3622	1
Refrigerators & Home Freezers	3623	1
Radio & TV Receiving Sets	3651	3
Phonograph Records	3652	1
Radio & Television	3662	4
Semiconductors and Related Devices	3674	3
Electronic Connectors	3678	1
Electronic Components	3679	3
X-Ray Apparatus & Tubes	3693	1
Engines, Electrical Equipment for	3694	1
Electrical Equipment	3699	3
		26

TRANSPORTATION

Motor Freight Transportation

DESCRIPTION	SIC	NO. OF RESPONDENTS
Local Trucking	4212	24
Trucking, except local	4213	29
Trucking, local with Storage	4214	7
Farm Product Warehousing & Storage	4221	3
Refrigerated Warehousing	4222	2
Warehousing & Storage, General	4225	4
Warehousing & Storage	4226	2
Terminal Facilities	4231	1
		72

WHOLESALE TRADE

Durable Goods

DESCRIPTION	SIC	NO. OF RESPONDENTS
Automobiles & Other Motor Vehicles	5012	8
Automotive Equipment	5013	59
Tires & Tubes	5014	4
Furniture	5021	6
Home Furnishings	5023	8
Lumber, Plywood, Millwork	5031	12
Construction Material	5039	10
Sporting Goods	5041	7
Toys & Hobby Goods	5042	4
Metal Service Centers	5051	6
Coal/Minerals & Ores	5052	1
Electrical Apparatus	5063	20
Electrical Appliances	5064	3
Electronic Parts	5065	10
Hardware	5072	8
Plumbing & Hydronic Supplies	5074	18
Heating & Airconditioning	5075	9
Refrigeration Equipment	5078	2
Commercial Machines	5081	23
Construction Machinery	5082	7
Farm Machinery	5083	22
Industrial Machinery	5084	29
Industrial Supplies	5085	8
Professional Equipment	5086	9
Service Equipment	5087	17
Transportation Equipment	5088	5
Scrap & Waste Material	5093	9
Jewelry & Watches	5094	9
Durable Goods	5099	19
		352

RETAIL TRADE

Building Materials

DESCRIPTION	SIC	NO. OF RESPONDENTS
Lumber and Building Materials	5211	48
Paint, Glass & Wallpaper Store	5231	13
Hardware Stores	5251	46
Nurseries Lawn Garden Supply	5261	22
Mobile Home Dealers	5271	6
		135

RETAIL TRADE

Automotive Dealers

DESCRIPTION	SIC	NO. OF RESPONDENTS
Car Dealers, New & Used	5511	58
Car Dealers, Used Only	5521	16
Auto and Home Supply	5531	34
Gasoline Service Stations	5541	99
Boat Dealers	5551	11
Recreational & Utility Trailer Dealers	5561	7
Motorcycle Dealers	5571	10
Automotive Dealers, general	5599	5
		240

APPENDIX B

Questionnaire Instrument

FORM APPROVED
OMB No.: 62-S80002
Expires: December, 1980

U.S. Metric Board Survey of Small Businesses

DAMANS AND ASSOCIATES, A MANAGEMENT CONSULTING FIRM, IS CONDUCTING A STUDY FOR THE U.S. METRIC BOARD TO IDENTIFY THE ISSUES IN VOLUNTARY METRIC PLANNING AND CONVERSION FOR SMALL BUSINESSES. THE METRIC BOARD NEEDS ACCURATE INFORMATION ABOUT POTENTIAL METRIC PLANNING AND CONVERSION OPPORTUNITIES AND/OR PROBLEMS FACING SMALL BUSINESSES WITH REGARD TO METRICATION. THE INFORMATION YOU PROVIDE MAY ENABLE THE BOARD TO ENCOURAGE THE POTENTIAL OPPORTUNITIES AND FIND WAYS TO LESSEN THE IMPACT OF POTENTIAL PROBLEMS OF METRICATION THROUGH EXERCISING ITS COORDINATING ROLE. THE AUTHORITY TO COLLECT THIS INFORMATION IS THE METRIC CONVERSION ACT OF 1975 (PUBLIC LAW 94-168, 15 USC 205A). THAT LAW PROVIDES THAT IT SHALL BE A FUNCTION OF THE U. S. METRIC BOARD TO CONDUCT SURVEYS ON METRIC CONVERSION AND ITS IMPACTS. THERE IS NO REQUIREMENT UNDER THE LAW TO PARTICIPATE IN SUCH SURVEYS. WHILE YOUR PARTICIPATION IS ENTIRELY VOLUNTARY, YOUR COOPERATION IS INDISPENSABLE.

ALL THE INFORMATION THAT YOU GIVE US WILL BE HELD IN THE STRICTEST CONFIDENCE. IT WILL BE USED ONLY TO PREPARE STATISTICAL TOTALS IN WHICH NO INFORMATION THAT WILL PERMIT IDENTIFICATION OF THE BUSINESS COMPLETING THE QUESTIONNAIRE WILL BE DISCLOSED TO ANY PERSON OR AGENCY EXCEPT AS MAY BE REQUIRED BY LAW. IT IS VERY IMPORTANT THAT WE RECEIVE YOUR COMPLETED QUESTIONNAIRE, AS YOUR BUSINESS HAS BEEN SELECTED TO REPRESENT THOSE OF ITS TYPE, SIZE, AND LOCATION IN THE NATIONAL SAMPLE.

IN PREPARING A RESPONSE TO THIS QUESTIONNAIRE, THESE INSTRUCTIONS AND DEFINITIONS SHOULD BE READ BEFORE RESPONDING:

Instructions

1. To ensure that the responses are complete, meaningful, and comparable, this questionnaire should be answered by the person(s) within your business who is(are) best able to respond to each section of the questionnaire.

2. It is important that the questionnaire be completed with firm-level data. If your firm is a multi-establishment firm, please complete the questionnaire with data for the entire firm.

3. Special instructions are always in LARGE CAPITAL LETTERS.

4. If you feel a question does not apply to your firm, record "NA" (Not Applicable). If you do not have information on a question, please enter "DK" for "Don't Know." Where questions call for numbers or amounts, please enter "0" (zero) if the answer to the question is "none."

Definitions

To aid in the creation of comparable responses, a list of definitions for certain key terms is provided. Please attempt to respond by using the closest approximation to the definition provided as is practicable for your establishment.

Business:	Unless otherwise specified, questions will pertain to a business. A business is defined as all physical locations where your services or industrial operations are performed (for example: a factory, mill, store, bank, sales office, warehouse, or central administrative office). Information should be reported for all branches of your business.
Voluntary Industry Metrication Planning:	Investigation of and planning for the change from the customary inch/pound system of measurement to the metric system. Investigation and planning is carried out by groups of interested individuals representing companies or trade associations who meet under the auspices of local, regional, or national trade associations or professional societies or a local, regional, or national metric planning organization.
Individual Company Metrication Plan:	The plan prepared by your business which spells out when and how you plan to voluntarily implement the use of the metric system in your business.
Soft Metric Conversion:	The expression of inch/pound units of measure in their direct metric equivalent; there is no physical change in the product itself. Soft converted products are products that are described/specified in metric or dual units, either by the customer (e.g., 1/2-inch tube ordered as 12.7 mm tube) or by the manufacturer (on drawings, manufacturing processes, engineering standards, etc.).
Hard Metric Conversion:	Refers to actual physical changes, not just substituting metric measurement units for English or customary measurement units (i.e., inch, pound, quart, etc.)
Fully Metric Product:	A product that has been designed and/or manufactured using metric as the only or preferred system of units (regardless of whether "soft" or "hard").
Hybrid Metric Products:	Products composed of both metric and non-metric parts, components, and/or materials.

Please complete this questionnaire and return it in the self-addressed envelope to DAMANS and Associates within one week from date of receipt. Any inquiries should be directed to:

Sam Annan or Mary Foote
DAMANS and Associates
(301) 840-9117

-or-

Edward McEvoy or Gene Visco
U.S. Metric Board
(703) 235-2583

We thank you in advance for your cooperation.

FORM APPROVED:	
OMB NUMBER:	62-S80002
EXPIRES:	December, 1980

U. S. Metric Board Survey of Small Businesses

The U.S. Metric Board, which has the responsibility of coordinating voluntary metric conversion, is interested in determining the opportunities, problems, and issues confronting small businesses in the metric planning and conversion process. Specifically, the Board is interested in the representation of small businesses in the planning for metric conversion.

1. ARE YOU A MEMBER OF ANY TRADE ASSOCIATION OR BUSINESS ORGANIZATION? (CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Yes ..... 1 No ..... 2 IF NO → GO TO Q.2

IF YES ↓

1a. What trade association(s) or business organization(s) do you belong to? (PLEASE LIST THE ASSOCIATIONS YOU BELONG TO BELOW.)

_____

_____

_____

_____

_____

_____

2. ARE YOU OR ANY OF THE ASSOCIATIONS YOU BELONG TO INVOLVED IN THE VOLUNTARY INDUSTRY METRICATION PLANNING FOR THIS INDUSTRY? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Yes 1
No 2

3. ARE YOU AWARE OF ANY ORGANIZATION(S) THAT IS(ARE) INVOLVED IN DEVELOPING PLANS FOR VOLUNTARY METRIC CONVERSION IN THIS INDUSTRY? (PLEASE CIPCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Yes ..... 1 No ..... IF NO → GO TO Q.4

IF YES ↓

3a. What organizations are you aware of that are involved in developing plans for voluntary metric conversion? (PLEASE LIST THE ORGANIZATIONS BELOW.)

_____

_____

_____

_____

_____

_____

4 DO YOU FEEL THAT YOU HAVE A FORUM FOR PRESENTING YOUR VIEWS ON THE PLANNING FOR VOLUNTARY METRIC CONVERSION? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Yes 1
No 2

4a. Through what means are your views on planning for metrication represented? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

No means of representation 1
Individual action, own initiative 2
Through membership in trade associations 3
Other 4

_____
(Please specify)

4b. If your views on voluntary metrication are heard through your trade association(s), which of the associations best represent your views? (PLEASE LIST THE ASSOCIATIONS BELOW.)

_____
_____
_____
_____
_____
_____

5. DO YOU FEEL THAT SMALL BUSINESSES SHOULD BE REPRESENTED IN THE PLANNING FOR METRIC CONVERSION IN THIS COUNTRY? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Yes ..... 1 No ..... 2 → IF NO → GO TO Q.6

IF YES ↓

5a. What do you see as the reasons why representation of small businesses in the planning for metrication is important in this industry? (PLEASE BE SPECIFIC.)

_____
_____
_____
_____
_____
_____

6. IN GENERAL, HOW WELL DO YOU THINK SMALL BUSINESSES IN THIS COUNTRY ARE REPRESENTED IN THE PLANNING FOR VOLUNTARY METRICATION? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Very Well 1
Fairly Well 2
Poorly 3
Very Poorly 4
Don't Know 8

6a. What recommendations do you have for making sure that small businesses are better represented in the planning for voluntary metric conversion in this industry? (PLEASE BE SPECIFIC.)

_____

_____

_____

_____

_____

_____

7. IN GENERAL, HOW FAR INTO THE FUTURE DO YOU PLAN FOR YOUR BUSINESS? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Less than one year 1
One to two years 2
Three to four years 3
Five years or more 4
Do not plan into the future 5

8. WHICH OF THE FOLLOWING METRIC CONVERSION ACTIVITIES HAVE TAKEN PLACE IN YOUR BUSINESS? (PLEASE CHECK BOX FOR EACH APPROPRIATE RESPONSE.)

(a) Issued metric policy statement ..... ☐
(b) Considered the costs and benefits of metric conversion ..... ☐
(c) Talked with suppliers about metric conversion ..... ☐
(d) Talked with customers about metric conversion ..... ☐
(e) Developed a metric conversion plan ..... ☐
(f) Developed a timetable for conversion ..... ☐
(g) Coordinated conversion plan with industry .... ☐
(h) Already converted; develop products in metric sizes ..... ☐
(i) Other ..... ☐

_____
Please specify)

9. DOES YOUR BUSINESS NOW DESIGN, MANUFACTURE, OR PROVIDE PRODUCTS OR SERVICES IN METRIC MEASUREMENTS? PLEASE INCLUDE SOFT METRIC PRODUCTS, HARD METRIC PRODUCTS, AS WELL AS HYBRID METRIC PRODUCTS AS DEFINED IN THE PREVIOUS SECTION. (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Yes ..... 1 No ..... 2 → IF NO → GO TO Q.16

IF YES ↓

9a. Indicate the approximate percentage of your company's products that are: (PLEASE WRITE THE NUMBERS ON THE LINES BELOW.)

Non-Metric ..... _____ %
Soft-Converted Metric ..... _____ %
Hard Metric ..... _____ %
Hybrid Metric ..... _____ %

9b. When did your business start designing, manufacturing, or providing products or services in the metric measurement? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Less than one year ago 1
1 to less than 3 years ago 2
3 to 5 years ago 3
More than 5 years ago 4

9c. Who or what committee made the decision for your business to design, manufacture, or provide products or services in the metric system? (PLEASE INDICATE NAME OF THE COMMITTEE OR TITLE OF THE INDIVIDUAL WHO MADE THE DECISION.)

Committee _____

Title _____

9d. Did it cost you more or less or was the cost the same in designing, manufacturing, or providing products or services in the metric system instead of the customary unit? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Considerably more 1
Somewhat more 2
About the same ..... 3 → IF 3 → GO TO Q.10
Somewhat less 4
Considerably less 5

9e. Approximately how much more or less did it cost to design, manufacture, or provide products or services in the metric system? (PLEASE WRITE THE APPROXIMATE AMOUNT ON THE LINE BELOW.)

Amount $_____

10. DID YOUR BUSINESS DEVELOP ITS OWN PLAN FOR METRIC CONVERSION OR DID IT ADOPT THE PLAN ALREADY DESIGNED BY THE INDUSTRY, OR WAS IT A JOINT VENTURE? PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Developed own plan 1
Adopted industry plan... 2
Joint venture 3
Did not have a plan, only responded to demand ..... 4 → IF 4 → GO TO Q.11

10a. Approximately how much did it cost to prepare or adopt the metrication plan? (PLEASE WRITE THE APPPROXIMATE AMOUNT ON THE LINE BELOW.)

Amount $_____

11. DID YOU RECEIVE ANY KIND OF FINANCIAL, TECHNICAL, OR GENERAL ASSISTANCE OF ANY KIND IN DESIGNING, MANUFACTURING, OR PROVIDING PRODUCTS OR SERVICES IN THE METRIC SYSTEM? (PLEASE CHECK BOX FOR EACH TYPE OF ASSISTANCE RECEIVED.)

(a) Financial assistance ..... ☐
(b) Technical assistance ..... ☐
(c) Personnel training ..... ☐
(d) General information ..... ☐
(e) Other ..... ☐

_____

12. FROM WHAT SOURCE(S) DID YOU RECEIVE THE ASSISTANCE? (PLEASE CHECK BOX FOR EACH APPROPRIATE SOURCE.)

(a) Financial institutions ☐
(b) Trade association ☐
(c) Trade union ☐
(d) Supplier ☐
(e) Customer ☐
(f) Government organizations ☐
(g) Other ☐

_____
(Please specify)

13. WHAT WOULD YOU SAY WERE THE REASONS WHY YOUR BUSINESS DECIDED TO DESIGN, MANUFACTURE, OR PROVIDE GOODS OR SERVICES IN THE METRIC SYSTEM? (PLEASE CHECK THE BOX FOR EACH APPRORPIATE RESPONSE.)

(a) Pressure from customers ☐
(b) Pressure from suppliers ☐
(c) To comply with industry standards ☐
(d) Own desire to attract new market ☐
(e) Other ☐

_____
(Please specify)

14. HAS THE USE OF THE METRIC SYSTEM IN YOUR BUSINESS OR THE PROVISION OF METRIC PRODUCTS OR SERVICES HELPED OR HURT YOUR BUSINESS? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Helped 1
Hurt 2
No difference 3

IF 3 → GO TO Q.15

14a. In what way(s) has the use of the metric system or the provision of metric products or services helped or hurt your business? (PLEASE BE SPECIFIC.)

_____
_____
_____
_____
_____
_____

15. WHAT PROBLEMS OR DIFFICULTIES DID YOU HAVE TO OVERCOME IN DESIGNING, MANUFACTURING, OR PROVIDING PRODUCTS OR SERVICES IN THE METRIC SYSTEM? (PLEASE BE SPECIFIC.)

_____
_____
_____
_____
_____
_____

15a. How did you overcome these problems or difficulties? (PLEASE BE SPECIFIC.)

_____

_____

_____

_____

_____

_____

15b. What would you do differently if you were to start designing, manufacturing, or providing products or services in the metric system today? (PLEASE BE SPECIFIC.)

_____

_____

_____

_____

_____

_____

IF YOU NOW DESIGN, MANUFACTURE, OR PROVIDE PRODUCTS OR SERVICES IN THE METRIC SYSTEM, GO TO Q.24.

16. WHY DOESN'T YOUR BUSINESS DESIGN, MANUFACTURE, OR PROVIDE PRODUCTS OR SERVICES IN THE METRIC SYSTEM? (PLEASE CHECK THE BOX FOR EACH APPROPRIATE RESPONSE.)

(a) Conversion *will be costly* ..... ☐
(b) Training employees will be time consuming ..... ☐
(c) Conversion will result in dual inventories .... ☐
(d) Customers will be confused by the metric system ..... ☐
(e) Conversion will increase the price of my business products and/or services ..... ☐
(f) Conversion will result in safety hazards and errors ..... ☐
(g) Sales will be lost to foreign imports ..... ☐
(h) Codes and standards will have to be changed ... ☐
(i) No demand for metric products by customers .... ☐
(j) Suppliers are not ready ..... ☐
(k) Other ..... ☐

_____
(Please specify)

17. DOES YOUR BUSINESS NOW HAVE A PLAN TO CONVERT TO THE METRIC SYSTEM AT ANY TIME IN THE NEXT TWO YEARS? THAT IS, HAVE YOU EITHER PREPARED A WRITTEN PLAN OR HELD MEETINGS TO DISCUSS PLANS TO CONVERT TO THE METRIC SYSTEM? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Yes ..... 1 No ..... 2 → IF NO → GO TO Q.23

IF YES ↓

17a. Who or what committee made the decision for your business to develop or adopt a metrication plan? (PLEASE INDICATE THE NAME OF THE COMMITTEE OR TITLE OF THE INDIVIDUAL WHO MADE THE DECISION.)

Committee: _____

Title: _____

17b. Is this a plan you developed yourself, or one that was already designed by the industry, or was it a joint effort between the industry plan and your own? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Developed own plan 1
Adopted industry plan 2
Joint effort 3

17c. What do you anticipate to gain for this business by converting to the metric system? (PLEASE BE SPECIFIC.)

_____

_____

_____

_____

_____

_____

17d. What problems or difficulties do you foresee in trying to implement your metrication plan? (PLEASE BE SPECIFIC.)

_____

_____

_____

_____

_____

_____

18. DO YOU ANTICIPATE IT WILL COST YOU MORE OR LESS OR WILL IT COST THE SAME TO DESIGN, MANUFACTURE, OR PROVIDE PRODUCTS OR SERVICES IN THE METRIC SYSTEM INSTEAD OF IN THE CUSTOMARY UNIT? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Considerably more 1
Somewhat more 2
About the same ..... 3 → IF 3 → GO TO Q.19
Somewhat less 4
Considerably less 5

18a. Approximately how much more or less do you expect it to cost to design, manufacture, or provide goods and services in the metric system rather than in the customary units? (PLEASE INDICATE THE APPROXIMATE AMOUNT ON THE LINE BELOW.)

Amount $_____

19. APPROXIMATELY HOW MUCH DID IT COST YOUR BUSINESS TO PREPARE OR ADOPT THE METRICATION PLAN? (PLEASE INDICATE THE APPROXIMATE AMOUNT ON THE LINE BELOW.)

Amount $_____

20. DID YOU RECEIVE ANY FINANCIAL, TECHNICAL, OR GENERAL ASSISTANCE OF ANY KIND IN PLANNING FOR METRICATION? (PLEASE CHECK THE BOX FOR EACH APPROPRIATE RESPONSE.)

(a) Financial assistance ..... ☐
(b) Technical assistance ..... ☐
(c) Personnel training ..... ☐
(d) General information ..... ☐
(e) Other ..... ☐

_____
(Please specify)

21. FROM WHAT SOURCES DID YOU RECEIVE THE ASSISTANCE? (PLEASE CHECK THE BOX FOR EACH APPROPRIATE SOURCE.)

(a) Financial institutions ☐
(b) Trade association ☐
(c) Trade union ☐
(d) Supplier ☐
(e) Customer ☐
(f) Government organizations ☐
(g) Other ☐

_____

22. WHAT ASSISTANCE, IF ANY, WOULD YOU NEED IN ORDER TO IMPLEMENT YOUR METRICATION PLAN? (PLEASE LIST ALL THE ASSISTANCE YOU WOULD NEED, THEN GO TO Q.24.)

_____
_____
_____ → GO TO Q.24
_____
_____
_____

23. PLEASE STATE THE REASONS WHY YOU DON'T HAVE A PLAN TO CONVERT TO THE METRIC SYSTEM. (PLEASE BE SPECIFIC.)

_____
_____
_____
_____
_____
_____

24. HAS THE INCREASING VOLUNTARY USE OF THE METRIC SYSTEM IN THIS COUNTRY HAD ANY EFFECT ON YOUR BUSINESS? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Yes ..... 1 No ..... 2 IF NO → GO TO Q.25

IF YES ↓

24a. In what way(s) has the increasing voluntary use of the metric system affected your business? (PLEASE BE SPECIFIC.)

_____
_____
_____
_____
_____
_____

25. ASSUME THAT YOU HAVE NOT METRICATED AND THAT YOU HAVE NO PLAN TO METRICATE. WHAT CIRCUMSTANCE(S) MIGHT LEAD YOU TO METRICATE? (PLEASE BE SPECIFIC.)

25a. Assume that you have not already metricated or do not already have a metrication plan, and that extreme pressure to voluntarily convert to the metric system is exerted on your business (e.g., by customers, suppliers, environment, etc.). What assistance would you need to enable you to successfully convert to the metric system? (PLEASE BE SPECIFIC.)

25b. From what sources would you seek such assistance in converting to the metric system? (PLEASE BE SPECIFIC.)

26. DO YOU DO ANY OVERSEAS BUSINESS? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Yes ..... 1 No ..... 2 IF NO → GO TO Q.27

IF YES ↓

26a. Approximately what percentage of your business's 1978 net sales was outside the U.S.? (PLEASE INDICATE THE APPROXIMATE PERCENTAGE ON THE LINE BELOW.)

_____%

27. APPROXIMATELY WHAT WAS YOUR BUSINESS'S NET 1978 SALES? (PLEASE CIRCLE THE NUMBER NEXT TO THE APPROPRIATE RESPONSE.)

Less than $100,000	1
$100,000 to $499,000	2
$500,000 to $999,000	3
$1,000,000 to $4,999,000	4
$5,000,000 to $10,000,000	5
More than $10,000,000	6

28. PLEASE USE THIS SPACE FOR ANY SPECIAL COMMENTS YOU WISH TO MAKE ABOUT ANY OF YOUR RESPONSES TO THE QUESTIONS OR ANY ADDITIONAL REMARKS YOU HAVE ABOUT VOLUNTARY CONVERSION TO THE METRIC SYSTEM.

THANK YOU VERY MUCH FOR YOUR HELP. PLEASE RETURN THE QUESTIONNAIRE IN THE ENCLOSED PRE-ADDRESSED ENVELOPE.

APPENDIX C

Small Business Membership In Trade Associations and Business Organizations

Local
State
Regional
National
International

LOCAL TRADE ASSOCIATIONS AND BUSINESS ORGANIZATIONS

Buffalo Parts Distributors
Builders Association of Fort Worth
Builders Exchange of Akron
Cahokia Lumberman's Association
Charleston South Carolina Dealers Association
Chicago Association of Commerce & Industry
Chicago Gift Exhibitors Association
Chicago Tool & Die Association
Clinton County Home Builders Association
Columbus Homebuilders Association
Columbus Ohio Industrial Association
Credit Bureau of Marianna
Dallas Cartage & Delivery Association
Detroit Tooling Association
Engineering Society of Detroit
Essex County Automotive Trade Association
Gaineville Auto Dealers Association
Gratiot Avenue Improvement Association
Greater Charlotte Auto Dealers Association
Houston Auto Dealers Association
Houston Industrial Distributors Association
Kensington Barley Businessmen Association
Los Angeles Gift Exhibitors Association
Lumber Trade Association of Greater Chicago
Lynn Credit Association
Manufacturing Association of Syracuse
Merchants Association of Chipley
Movers Association of Springfield, MO
New Market Business Association
Niagara Frontier Auto Dealers Association
Norfolk Beverage Company
Norfolk Storage Company
Northern Indiana Well Drillers Association
Oldsmobile Dealer T.V. Communications, Inc.
Orlando Auto Dealers Association
Oshkosh Area Association of Manufacturing and Commerce
Philadelphia Textile Salesman Association
Pittsburgh Equipment Distributors
Porter-Jasper Home Builders Association
Puget Sound Flower Growers Associates

NOTE: Alphebetical listings are compiled from association names as reported by respondents.

LOCAL (cont.)

Purchasing Management Association of Buffalo
Richmond Retail Merchants Association
Saint Paul Home Builders Association
San Francisco Housewares Association
Seattle Master Builders
Smaller Manufacturing Association of Waterburg
Souderton Board of Trade
Twin City Tool & Die Association
West Lafayette Businessmen
Williamette Tariff Bureau
World Trade Club of St. Louis

STATE TRADE ASSOCIATIONS AND BUSINESS ORGANIZATIONS

Alabama Auto Dealers Association
Alabama Forestry Association
Arizona Auto Dealers Association
Arizona Landscape Contractors Association
Arkansas Auto Dealers Association
Arkansas Mobile Home Standard Association
Arkansas Water Well Association
California Automatic Vendors Council
California Automotive Jobbers
California Automotive Wholesalers Association
California Licensed Contractors Association
California Retail Hardware Association
California Service Station Association
California Trucking Association
Connecticut Automotive Association
Connecticut Business & Industry Association
Connecticut Household Movers Tariff Bureau
Florida Auto Dealers Association
Florida Automotive Wholesalers Association
Florida Home Builders Association
Florida Irrigation Society
Georgia Auto Dealers Association
Georgia Forestry Association
Georgia Office Machine Dealers Association
Georgia Utilities Contractors Association
Hawaii Automotive & Retail Gasoline Dealers Association
Idaho Motor Transport Association
Illinois Gasoline Dealers Association
Illinois Lumber & Material Dealers Association
Illinois Manufacturers Association
Illinois Retail Hardware Association
Illinois Small Business Association
Indiana Auto Dealers Association
Indiana Implement Dealers Association
Indiana Lumber and Builders Supply Association
Indiana Manufacturers Association
Indiana Motor Truck Association
Indiana Service Station Dealers Association
Iowa Automobile Wholesalers Association
Iowa Independent Oil Jobbers Association
Iowa Movers and Warehousemen's Association
Iowa Retail Farm Equipment Association
Kansas Motor Carriers Association
Kentucky Associated Industries
Kentucky Auto Dealers
Kentucky Auto Wholesalers Association
Louisianna Building Materials Association

STATE (cont.)

Maine Marine Industries
Maryland Auto Dealers Association
Maryland Auto Trade
Maryland Truckers Association
Massachusetts Associated Industries
Massachusetts Auto Dealers Association
Massachusetts Gasoline Dealers Association
Minnesota Association of Commerce & Industry
Minnesota Certified Applicator Association
Minnesota Plant Food Association
Minnesota Pork Producer Association
Minnesota Service Station Association
Missouri Automotive Wholesalers Association
Missouri Forest Products Association
Missouri Meat Processors Association
Missouri Water Well Association
Montana Builders Association
Montana Hardware and Implement Association
Montana Motor Carriers Association
Nebraska Fertilizer & Chemical Institute Inc.
Nebraska Forest Institute
Nebraska Professional Land Surveyors
Nebraska Motor Carriers Associations
Nebraska Wholesalers Association
New Jersey Automobile Dealers Association
New Jersey Automotive Jobbers Association
New Jersey Buisness & Industry Association
New Jersey Credit & Trade
New Jersey Food Council
New Jersey Gasoline Retailers
New Jersey Home Builders Association
New Jersey Lumber & Building Material Dealers
New Jersey Manufacturing Association
New Jersey Sash & Doors Association
New Jersey Tool & Machining Association
New Jersey Tooling & Machine Institute
New Jersey Trade Association
New Jersey Turfgrass Association
New Mexico Auto Dealers Association
New Mexico Automotive Wholesalers Association
New York Auto Dealers Association
New York Gift Exhibitors Association
New York Ink Manufacturing
New York Wholesalers Association
North Carolina Auto Dealers Association
North Carolina Automotive Wholesalers Association

STATE (cont.)

North Carolina Boat Carriers Association
North Dakota Automotive Wholesalers Association
North Dakota Implement Dealers Association
Ohio Auto Dealers Association
Ohio Hardware Association
Ohio Lumber Association
Ohio Manufacturing Association
Ohio Motorcycle Dealers Association
Oklahoma Home Builders Association
Oklahoma Lumbermen's Association
Oklahoma Mobile Home Association
Oklahoma Retail Grocers Association
Oklahoma Society of Professional Engineers
Oregon Auto Parts Association
Oregon Drayment Warehouse Association
Oregon Plumbing Association
Pennsylvania Automotive Association
Pennsylvania Auto Wholesalers Association
Pennsylvania Motor Truck Association
Pennsylvania School Bus Operators Association
South Carolina Automotive Parts Wholesalers
South Carolina Movers Association
Tennessee Gasoline Dealers Association
Tennessee Movers Association
Tennessee Second Hard Auto Association
Texas Association of Builders
Texas Auto Dealers Association
Texas Auto Wholesalers Association
Texas Business Association
Texas Feed and Grain Association
Texas Lumbermen's Association
Texas Manufacturing Housing Association
Texas Oil Marketers Association
Utah Association of Small Business
Utah Auto Dealers Association
Utah Mason Contractors Association
Virginia Automotive Trade Association
Virginia Building Materials Association
Virginia Manufacturers Association
Virginia Plumbing Association
Virginia Poultry Feed
Washington Automotive Wholesalers Association
Washington Marine Dealers Association
Washington Motorcycle Dealers Association
Washington Nurserymen's Association
West Virginia Motor Truck Association
West Virginia Supply Association

STATE (cont.)

Wisconsin Automotive Trade Dealers Association
Wisconsin Employers Association
Wisconsin Farm Equipment Association
Wisconsin Independent Businessmen
Wisconsin Manufacturers Association
Wisconsin Radiator Association
Wisconsin Retail Hardware Association
Wisconsin Lumbermen Association

REGIONAL TRADE ASSOCIATION AND BUSINESS ORGANIZATIONS

Building Industry Association of Southern California
Carolina-Georgia Lumbermans Association
Cascade Employers Association
Central Florida Marine Trade Association
Eastern Nebraska Heavy Contractors Association
Fifth District Travelers
Georgia-Florida Home Association
Golden West Ceramic Association
Great Lakes Travelers Club
Indiana-Kentucky Hardware Association
Intermountain Association of Hardware & Implement Dealers
Intermountain Oil Marketers
Long Island Association
Long Island Gasoline Retailers Association
Lumberman's Association of South California
Manufacturers Association of Delaware Valley
Mid-America Lumberman's Association
Mid-America LBA Association
Middlesex County Auto Dealers Association
Mid-South Farm Equipment Association
Mo.-Kansas Automotive Association
Mo.-Kansas Lumberman's Association
New England Association of Plumbing Inspectors
New England Association of Reproducing Engineers
New England Council Inc.
New England Hardware Association
New England Retail Lumberman's Association
North Central Electrical League
North Central Electrical Manufacturer's Club
Northwest Hardwood Association
Northwestern Lumberman's Association
Pacific Northwest Hardware & Implement Association
Pennsylvania and Atlantic Seaboard Hardware Association
Plumbing & Heating Wholesalers of New England
Rocky County Agricultural Society
Rocky County Vocational Center
Rockly Mountain Automotive Association
Rocky Mountain Lumber Dealers Association
Smaller Business Association of New England
Southeastern Warehousemans Association
Southereastern Poultry Convention
Southern California Computer Dealers Association
Southern California Marine Association
Southern California Service Station Association
Southern Lumberman's Association
Southwest Hardware & Implement Association
Southwest Lumberman's Association
Umgua Valley Homebuilders Association
Western Industry Dealers Association
Western Retail Implement & Hardware Association

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SURVEY OF SMALL BUSINESSES: ISSUES IN METRIC PLANNING AND CONVE--ETC(U)
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NATIONAL TRADE ASSOCIATIONS AND BUSINESS ORGANIZATIONS

Air Diffusion Council
Alternative Wastewater Management Association
American Association of Meat Processors
American Building Contractos Associations
American Chemical Society
American Electronics Association
American Gear Manufacturers Association
American Importers Association
American Imported Automobile Dealers Association
American Institute of Kitchen Dealers
American Institute of Steel Engineers
American Machine Tool Distributors Association
American Management Association
American Manufacturers Association
American Materials Management Society
American Movers Conference
American National Standards Institute
American Nurserymen's Associayion
American Paper Institute
American Parts Systems
American Polled Hereford Cattle Club
American Pork Congress
American Pulpwood Association
American Retreaders Association
American Society of Agricultural Engineers
American Society of Civil Engineers
American Society of Composers, Artists and Publishers
American Society of Heating, Refrigeration & Air Conditioning Engineers
American Society of Mechanical Engineers
American Society of Metals
American Society of Plumbing Engineers
American Society of Sanitary Engineers
American Society for Testing and Materials
American Supply Association
American Supply and Machinery Manufacturers Association
American Textile Machinery Association
American Tree Farm System
American Trucking Association
American Vacuum Society
American Warehousemen's Association
American Waterworks Association
American Welding Society
Amusement Machine Operators of America
Architectural Aluminum Manufacturers Association
Associated Builders and Contractors
Association for the Development of Computer-Based Instructional Systems

NATIONAL (cont.)

Association of Diesel Specialists
Associated General Contractors of America
Association of Oilwell Servicing Contractors
Audio Engineering Society
Automotive Parts Rebuilders Association
Automotive Service Councils
Automotive Service Industry Association
Automotive Warehouse Distributors
Beauty and Barber Supply Institute
Better Business Bureau
Bituminous Coal Operators Association
Boat Owners Association of the U.S.
Builders Exchange Executives
Building Industry Association
Building Materials Distributors Association
Chain Saw Manufacturers Association
Chemcial Specialists Manufacturers Association
Composite Can and Tube Institute
Compressed Gas Association
Copper and Brass Servicenter Association
Cosmetics, Toiletry and Fragrance Association
Construction Specification Institute
Diamond Dealers Club
Diamond Trade Association
Distribution Contractors Association
Door and Operators Dealers Association
Door Operators and Remote Control Manufacturers Association
Engine Generator Set Manufacturers Association
Engine Service Association
Electric Apparatus Service Association
Electronic Representation Association
Fireplace Institute
Fire Equipment Wholesalers Association
Forest Farmers Association
Fragrance Manufacturers Association
Gasoline Dealers Association
Hardwood Plywood Manufacturers Association
Home Improvement Council
Household Goods Carriers Bureau
Independent Serving Machine Dealers of America
Institute of Electrical & Electronic Engineers
Institute of Industrial Launderers
Institute of Scrap Iron & Steel
International Car Wash Association
International Solar Energy Society
Industrial Diamond Association of America
Industrial Manufacturers Representatives Association

NATIONAL (cont.)

Industrial Steel Equipment Association
Jewelery Board of Trade
Jewelers Shipping Association
Jewelers Vigilance Committee
Laundry and Cleaners Allied Trade Association
Linen Supply Association of America
Manufacturers Agents National Association
Manufacturing Jewelers and Silversmiths of America
Maritime Propeller Club
Master Builders
Material Handling Equipment Distributors Association
Metal Building Dealers Association
Mica Industry Association
Military Movers Association
Mobile Air Conditioning Association
Motorcycle Industry Council
Movers and Warehousemen's Association
National Association of Broadcasters
National Association of Electrical Distributors
National Association of Food Equipment Manufacturers
National Association of Garage Door Manufacturers
National Association of Home and Art Builders
National Association of Home Builders*
National Association of Home Remodelers
National Association of Manufacturers
National Association of Manufacturer Agents
National Association of Marine Products
National Association of Metal Finishers
National Association of Pattern Manufacturers
National Association of Real Estate Brokers
National Association of Recycling Industries
National Association of Tool & Manufacturers
National Association of Wholesalers
National Association of Wholesaler-Distributors
National Automatic Merchandisers Association
National Automobile Dealers Association**
National Auto Parts Dealers Association
National Automotive Radiator Association
National Beer Wholesalers Association
National Building Material Dealers Association
National Building Material Distributors Association
National Burglar and Fire Alarm Association
National Center for Resource Recovery

* Listed by 1.3% of respondents answering question.
** Listed by 2% of respondents answering question.

NATIONAL (cont.)

National Chamber of Commerce*
National Electrical Manufacturers Association
Natioanl Electrical Distributors Association
National Electric Sign Association
National Federation of Independent Business**
National Fire Protection Association
National Fireplace Institute
National Floor Covering Distributors
National Furniture Warehousemen's Association
National Glass Dealers Association
National Hardwood Lumber Association
National Hearing Aid Society
National Heating & Air Conditioning Wholesalers Association
National Housewares Manufacturers Association
National Independent Automobile Dealers Association
National Lawn and Garden Distributors Association
National Lumber and Building Materials Association
National Machinery Dealers Association
National Marine Manufacturers Association
National Marine Retailers Association
National Office Machine Dealers Association
National Office Products Association
National Paint and Coatings Association
National Rebuilders Association
National Remodelers Association
National Retail Hardware Association
National Right to Work Committee
National Small Business Association
National Sporting Goods Association
National Terrazzo and Mosiac Association
National Tire Dealers and Retreaders Association
Natioanl Tool and Die Manufacturers Association
National Tool, Die, and Precision Machining Association
National Tooling and Machine Association
National Unfinished Furniture Association
National Wheel and Rim Association
National Welding Supply Association
National Wood Energy Institute
North American Heating & Air Conditioning Wholesalers
Optical Laboratories Association
Painting and Decorating Contractors of America
Photo Marketing Association
Pottery and Allied Workers Brotherhood
Powdered Metals Industries Federation

* Listed by 7.5% of respondents answering question.
** Listed by 6% of respondents answering question.

NATIONAL (cont.)

Process Equipment Manufacturers Association
Professional Picture Framers Association
Recreational Vehicle Dealers Association
Retail Farm Equipment Association
Retail Gasoline Dealers Association
Sanitary Supply Association
Small Business Association
Small Business Service Bureau
Soap and Detergent Association
Society of Automotive Engineers
Society of Carbide Tool Engineers
Society of Fire Protection Engineers
Society of Die Casting Engineers
Society of Manufacturing Engineers
Society of Organic Chemicals
Society of Photographic Engineering
Society of Photographic Illustrators
Society of Plastics Industry
Solid Waste Management Association
Specialty Equipment Market Association
Steel Service Center Institute
Technical Association of the Pulp and Paper Industry
Tool and Die Institute
Toy Wholesalers Association of America
Volvo Dealers Association
Warehouse Distributors Association
Water Quality Association
Wire Association

INTERNATIONAL TRADE ASSOCIATIONS AND BUSINESS ORGANIZATIONS

Alberta Trucking Association
Association of Oil Well Drilling Contractors
Materials Management Society
North America Wholesaler Lumber Association
Rotary International
Sales and Marketing Executive International


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